ENGINEERING NEWS-RECORD

★

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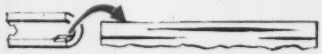
A McGRAW-HILL PUBLICATION

OF THE LONGER LIFE OF BYERS WROUGHT IRON

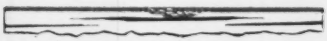
Every engineer will recognize this picture as a notch-fracture test specimen . . . and will appreciate the unusual physical properties suggested by the break.

The hickory-like fracture results from the unique structure of wrought iron. Tiny threads of glass-like silicate slag, 200,000 to 250,000 per square inch of section, are distributed through a matrix of high-purity iron. This fibrous structure, which might be compared to that of a stranded wire cable, equips wrought iron to withstand sudden shock, and to resist fatigue induced by continuing vibration.

Of even more importance in the average application is the *corrosion resistance* of wrought iron . . . which also comes directly from the unique structure and composition of the material. If a small section of wrought iron were placed under a microscope, a few of the multitude of silicate slag fibers would show up as in this sketch.



If corrosion attacks this specimen, it would first cover the entire surface . . . then concentrate at one point, and work inward. Soon it would encounter one of the slag fibers . . . and since this fiber is unaffected by corrosion, the inward march would be halted. This action is shown by this sketch.



Corrosion is now "detoured." It works right and left, until it comes to the end of the fiber, when it may start to work inward again. The process is repeated when the second line of defense is encountered. Pitting, and rapid penetration of the metal, is discouraged. Useful life is determined by how long it takes for corrosion to reduce the entire body of metal to its safe limit of thickness, rather than by how long it takes corrosion to perforate the wall at a few vulnerable points. The fibers also anchor the initial protective scale, which shields the underlying metal.

Every cost sheet today confirms the fact that the most expensive material you can use is that which must be replaced too soon—and too often. The extra service of wrought iron is helping tens of thousands of users to cut maintenance costs. We will welcome an opportunity to review your piping problem with you—and to recommend the places where wrought iron—on the basis of its past performance—can be profitably used. Ask for our booklet, "THE A B C'S OF WROUGHT IRON."

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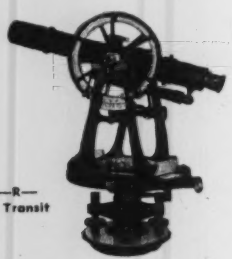

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ENGINEERING NEWS-RECORD

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Volume 145 SEPTEMBER 28, 1950 No. 13

WALDO G. BOWMAN
Editor

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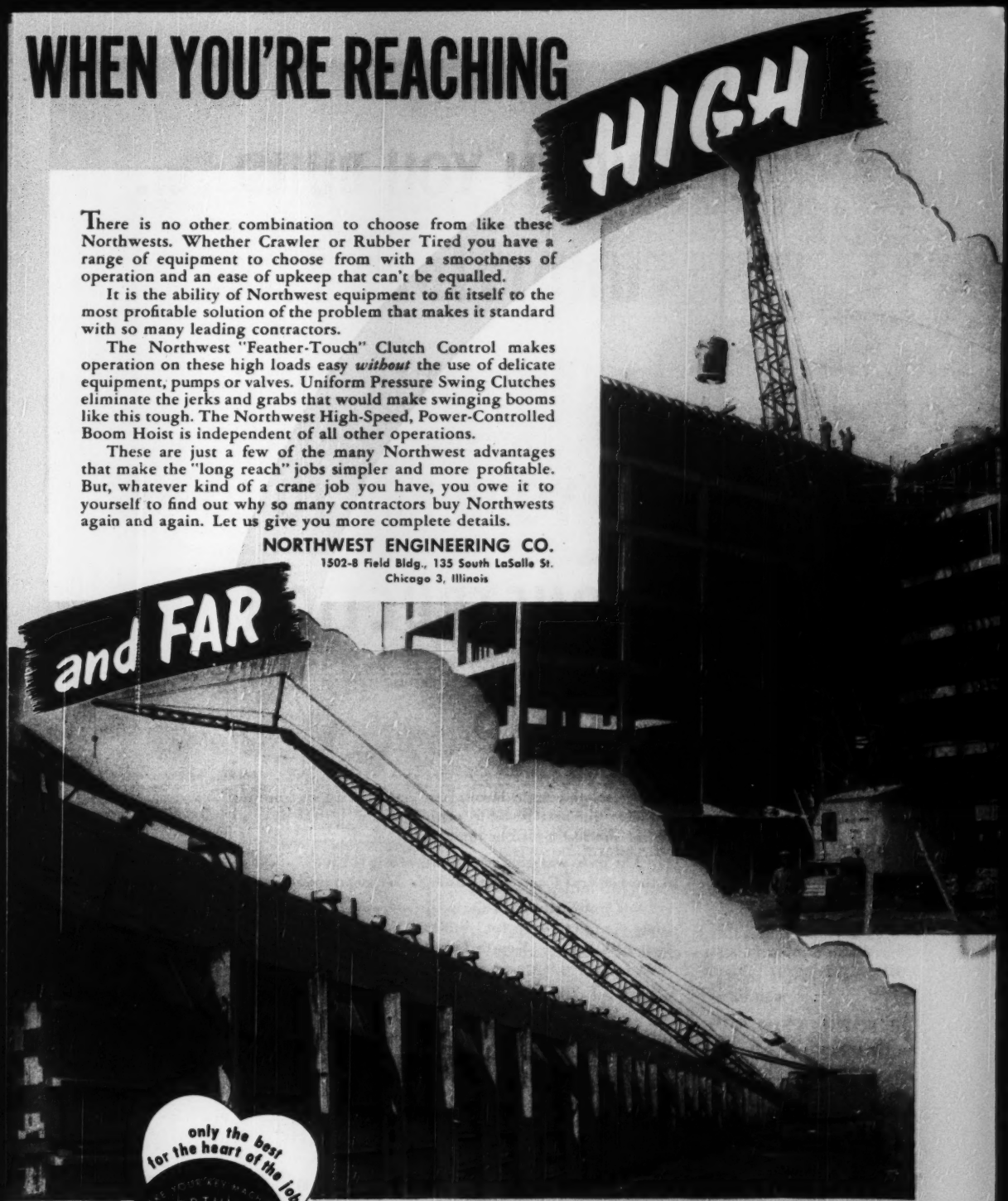
WHEN YOU'RE REACHING HIGH



There is no other combination to choose from like these Northwests. Whether Crawler or Rubber Tired you have a range of equipment to choose from with a smoothness of operation and an ease of upkeep that can't be equalled.

It is the ability of Northwest equipment to fit itself to the most profitable solution of the problem that makes it standard with so many leading contractors.

The Northwest "Feather-Touch" Clutch Control makes operation on these high loads easy *without* the use of delicate equipment, pumps or valves. Uniform Pressure Swing Clutches eliminate the jerks and grabs that would make swinging booms like this tough. The Northwest High-Speed, Power-Controlled Boom Hoist is independent of all other operations.

These are just a few of the many Northwest advantages that make the "long reach" jobs simpler and more profitable. But, whatever kind of a crane job you have, you owe it to yourself to find out why so many contractors buy Northwests again and again. Let us give you more complete details.

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- uniform labor policy
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Those who build have every right to expect from the Construction Industry the best possible project at the lowest possible cost in the shortest possible time.

The *only* way this can be assured is to give *undivided responsibility* to the General Contractor through the award of *one* general contract.

For information on the positive advantages of a single contract, write for your copy of "Undivided Responsibility . . . Key to Lower Construction Costs."

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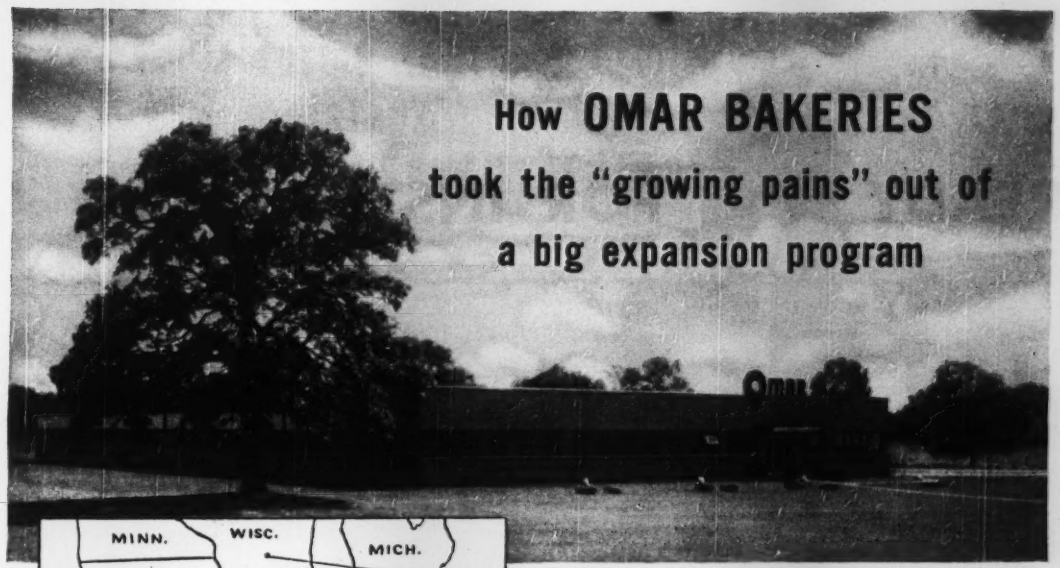


How OMAR BAKERIES took the "growing pains" out of a big expansion program

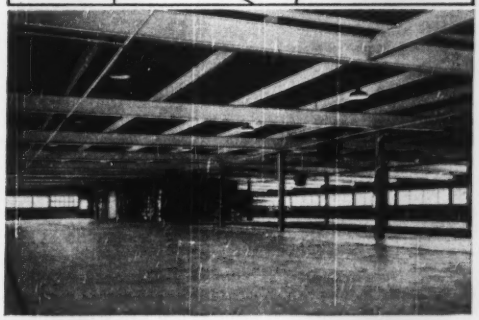
...by standardizing on LURIA BUILDINGS

28 installations in 6 states—and still building!

Planning, engineering and erecting 28 new branch buildings in 6 states would ordinarily present quite a problem. But Omar, Inc. solved it, simply and economically, by using one basic Luria Standard Building for every installation.

These new buildings—including office space and complete facilities for loading, storage and repair of delivery trucks—were planned with Omar for identical streamlined efficiency of every branch operation. Appearance was an important consideration, too, and every Omar building is a credit to the community as well as a distinctive identification of the Company.

All of these exacting requirements were met—at tremendous savings—with Standard Buildings by Luria. Each building was delivered to the site completely fabricated and ready for fast, easy erection.



Interior view of truck garage section of one of the 28 Luria Standard Buildings erected by Omar Bakeries. Each building is 110 feet wide, varying in length from 68 to 248 feet, depending on the truck storage requirements. Interior arrangement is identical in every building, so that Omar route men are equally at home in any branch.

You, too, may have a distribution problem—or a production problem. But if it's buildings you need, the solution is simple—**STANDARDIZE WITH LURIA.**

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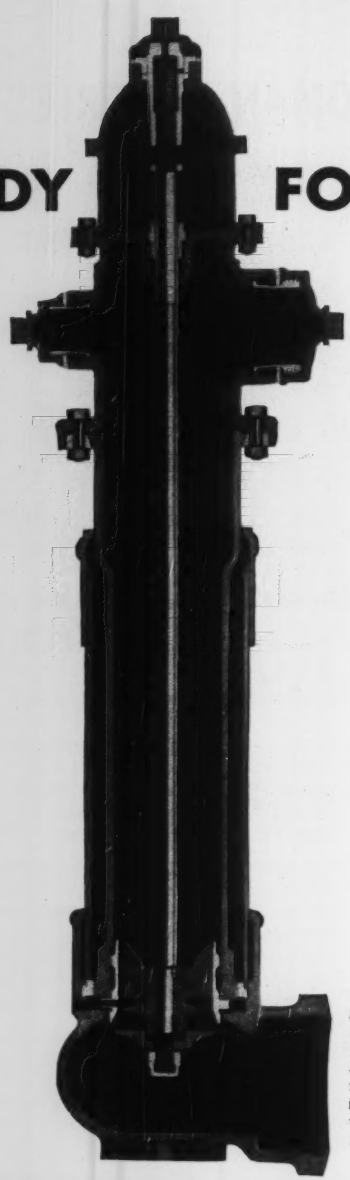

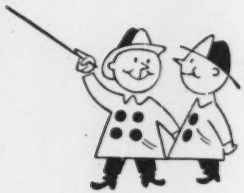

There's no place where rust or ice can form to interfere with the functioning of the Mathews Modernized Hydrant. The operating thread is above the water, separated from it by the stuffing box plate. This plate is cast integral with the nozzle section and, with the packing, provides a positively leakproof construction.

MATHEWS MODERNIZED HYDRANTS SET THE PACE: Easily maintained, because simple in construction • All working parts contained in replaceable barrel • Stuffing box cast integral with nozzle section • Head can be turned 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • Operating thread only part to be lubricated • A modern barrel makes an old Mathews good as new Available in sizes 4" to 16" with mechanical joint pipe connections.

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(SANTOPHEN 20)

A MONSANTO PENTA formulation, applied by pressure, is used as the preservative in the southern yellow pine and gum decking of the platform shown above in the photograph of the Illinois Central Suburban Station at 83rd Street, Chicago.

The Illinois Central Railroad—one of the nation's great mass transportation systems—is using Monsanto PENTAchlorophenol as a wood preservative in the platform decking at its 83rd Street suburban station in Chicago. PENTA pressure treatment of wood adds life to platforms that must endure millions of passenger footsteps by controlling insects and fungi under varying weather conditions.

PENTA makes the decking *safer* because it *resists decay* and remains strong . . . because it never becomes slippery due to the preservative coming to the surface in hot weather. PENTA, properly formulated, is a *clean treatment* that does not soil shoes or clothing. Paintable surfaces also are possible with PENTA.

Experience of users of PENTA proves that maintenance costs are lowered because PENTA makes wood last at least 3 to 5 times longer than untreated lumber.

PENTA, a chemical compounded specifically to preserve wood, always is *uniform* in effectiveness when properly applied by brushing, dipping or pressure. It is a long-lasting preservative that penetrates further into the wood as time goes on.

Your problem may be a station platform . . . a loading dock . . . a floor subjected to moisture . . . any wooden structure exposed to weather. Whatever its nature, learn how you can make wood last longer by using PENTA. Mail the coupon or contact the nearest Monsanto Sales Office for information on PENTA. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-J South Second St., St. Louis 4, Missouri.

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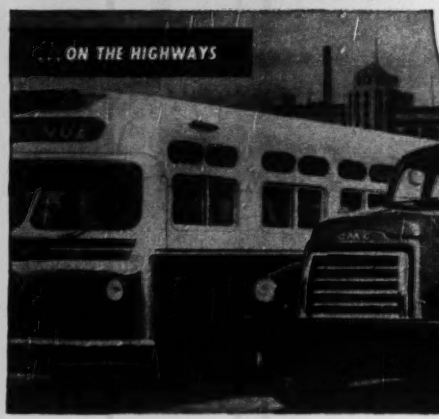


This is The Diesel

that changed the world's power picture

ONE DIESEL—and one alone—blazed a trail which has won world-wide recognition for the oil-burning engine as the most economical source of smooth, dependable, agile power for locomotives, trucks, buses, marine and other mobile uses.

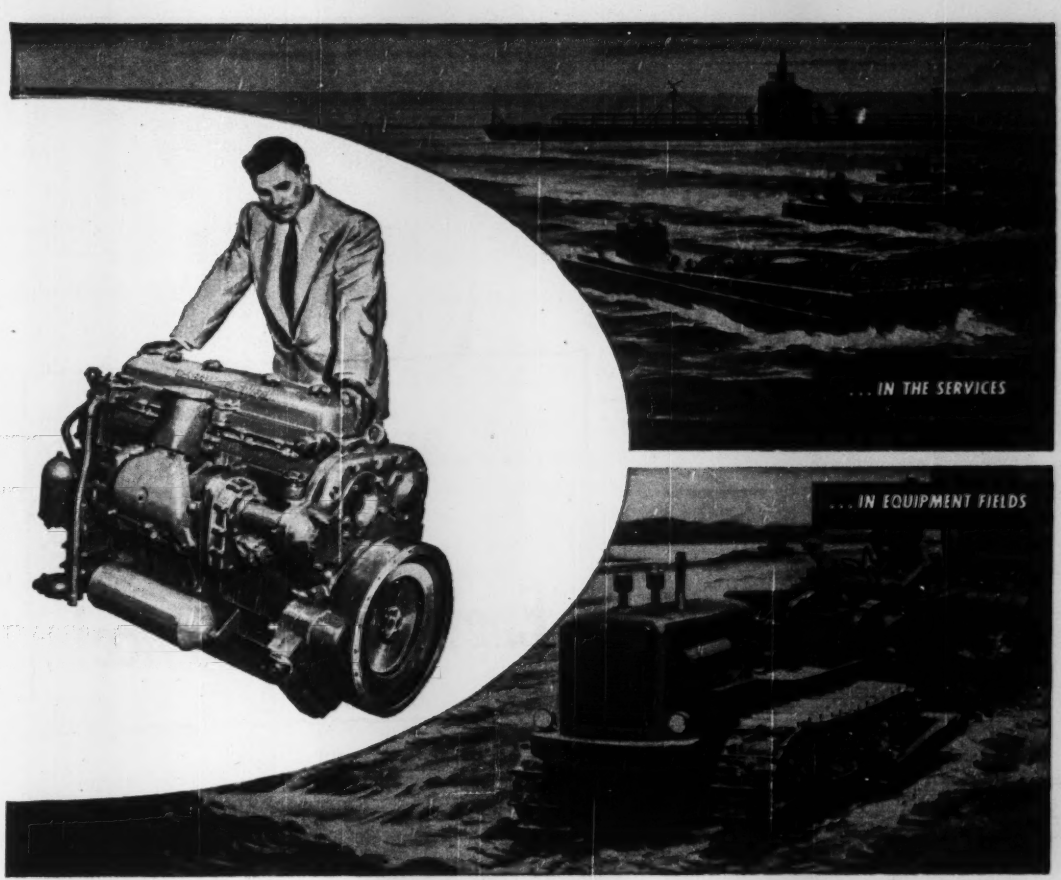
It is the General Motors Diesel engine, one size of which now drives most of America's crack passenger and freight trains. Another powers many of the Navy's submarines and other vessels.

And a third—the GM Series 71 engine—is the most widely used of all, totaling 46,000,000 horsepower. *It has surmounted the exacting conditions of War and met the economic requirements of Peace.* It has brought the same efficiency to a wide range of jobs, including many where Diesel power was never usable before.

That is because the "71," like all GM Diesels, is a two-cycle engine. Two-cycle means it produces power with every piston downstroke—in contrast to most other Diesels that generate power only on every second downstroke.

Equally important, GM Diesels have a direct jet-injection system that feeds fuel to cylinders in exactly metered charges—insuring better combustion and eliminating troublesome high-pressure fuel lines.

These basic differences make GM Diesels far more compact and much lighter than other Diesels of equal horsepower—without sacrificing ruggedness. These engines accelerate faster, are unmatched for smoothness, start quickly and are clean-burning.



"Your Key to Power Economy"

Today, GM Series 71 Diesel engines are taking the place of gasoline engines on many types of power jobs — of steam engines on land and sea — even of other Diesels because twelve years' experience has proved they are so dependable, so efficient, so economical.

General Motors 2-cycle Series 71 engines provide Diesel power at its best — *Diesel brawn without the bulk.*

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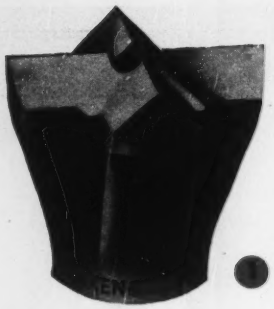
Only TIMKEN® offers all 3 rock bit types



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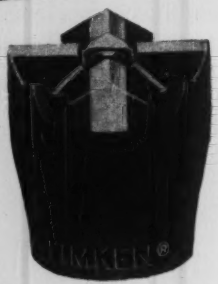
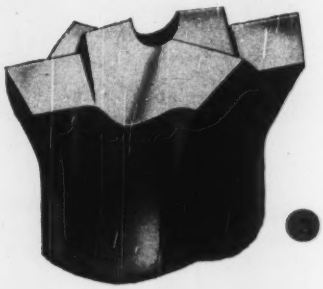


● CARBIDE INSERT



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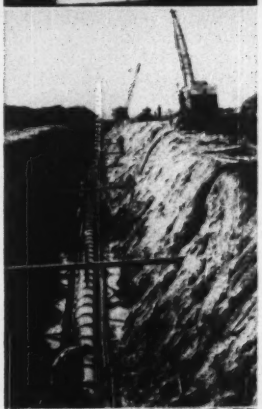

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both Universal Sewer Pipe and other vitrified products, and U. S. Concrete Pipe serve industry and business and the nation in great and small installations from Mid-Continent to East Coast and the Lakes to the Gulf.

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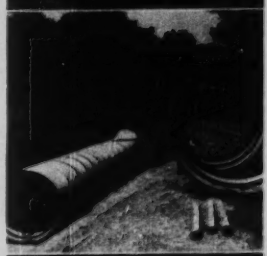

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To drive 35-foot concrete piles, 16 inches square, 25 feet into coral rock called for a highly dependable hammer. That is why Powell Bros., the contractors on this Florida State Highway project at Fort Lauderdale, used a McKiernan-Terry S-5 Single-Acting Pile Hammer. •This McKiernan-Terry Single-Acting Hammer strikes with a 16,250 foot-pound blow. It is of a highly specialized design for handling heavy mass piles such as concrete, and for driving into dense, difficult soils. •17 sizes of hammers and extractors are available in the complete McKiernan-Terry line. Write for bulletin giving all the facts.

McKIERNAN TERRY

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COAL TOWERS

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Plants: Harrison, N. J., Dover, N. J.
MK38

NEWS BRIEFS

Boys will be boys—Vandals went on a rampage recently at a $2,500,000 Housing Authority construction project in Somerville, Mass. The damage, estimated at several thousand dollars, included sand dumped into gasoline truck tanks, sand poured in gears of steam shovels, fires set in a lumber mill, a truck driven into a ditch and stripped, and oil released from drums.

Cement by air—D. A. Collins Co. of Mechanicville, N. Y., uses a helicopter for quick delivery of cement to a N. Y. State Conservation Department project at Tahawus five miles from Mt. Marcy in the Adirondacks. The helicopter delivers its load over the mountains from Lake Sanford in 10 minutes, whereas by road it would take about two hours and a half.

Fun for small fry—At Maumee, Ohio, near Toledo, is to be built the first of a chain of juvenile amusement parks. It will occupy a 20-acre tract with parking space for 500 cars and lounging facilities for grown-ups. Balaban & Katz of Chicago are back of the overall plan, and A. Bentley & Sons Co. of Toledo have the construction contract.

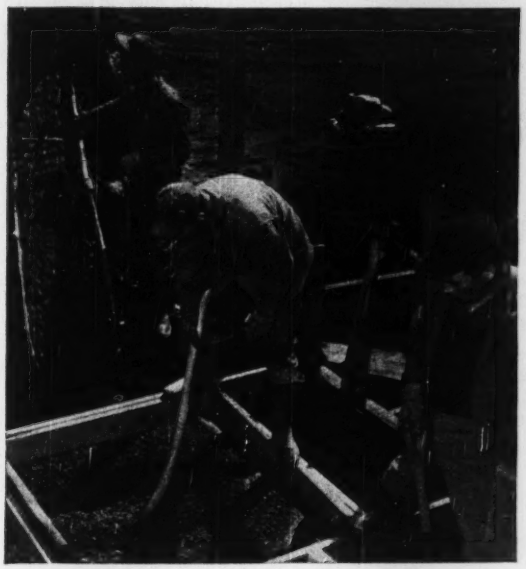
With the greatest of ease—12-ton precast concrete blocks are being carried through the air on a huge cable across the Oregon channel of the Columbia River during the construction of a second-step cofferdam. The blocks are being dropped into a 240-ft gap in the upstream wing of the cofferdam to make the final closure. The river at that point is closed to navigation temporarily. After closure is effected, the water will rise enough to permit the operation of the navigation lock on the Washington side.

Shoo fly!—Residents of Hingham, Mass., have asked the state to wage war on horseflies that have started a sudden invasion of that town and refuse to be ousted by blasts of the supposedly deadly DDT spray. Family groups complained to the selectmen. The latter conferred with the local health officials who, after spraying the insects with DDT, appealed to the state health officials for protection. Their solution of the problem is not yet announced.

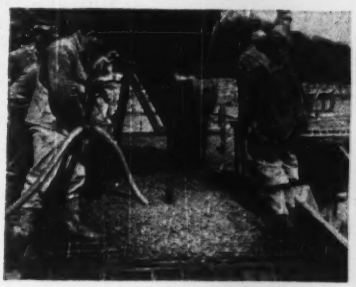
Radioactive mosquitoes—A million radioactive mosquitoes are flying around a ten-mile irrigated pasture at Turlock, Calif. Through radiation-detecting gadgets, scientists will be able to

CP HICYCLE VIBRATOR

works anywhere within 400 feet of Generator



A portable gasoline generator on ground powers CP Hicycle Vibrator on top of form.



CP Hicycle Vibrator places concrete as fast as it is delivered.

With the CP Hicycle Vibrator, the generator is placed in a convenient location, away from the actual pouring operation, and the one-man Vibrator can be used anywhere within a 400-foot radius.

The tough electric cable, in its neoprene hose handle, can be carried over forms or bent around corners without danger of injury. There is no troublesome flexible shaft; the motor and vibrating mechanism are in the head of the tool. An extension hose handle permits working 25 feet down in a form.

CP Hicycle Vibrators run at a constant speed of 10,000 v.p.m., the most suitable frequency for concrete placement, and will handle 30 to 40 cubic yards an hour of 2″ slump concrete.

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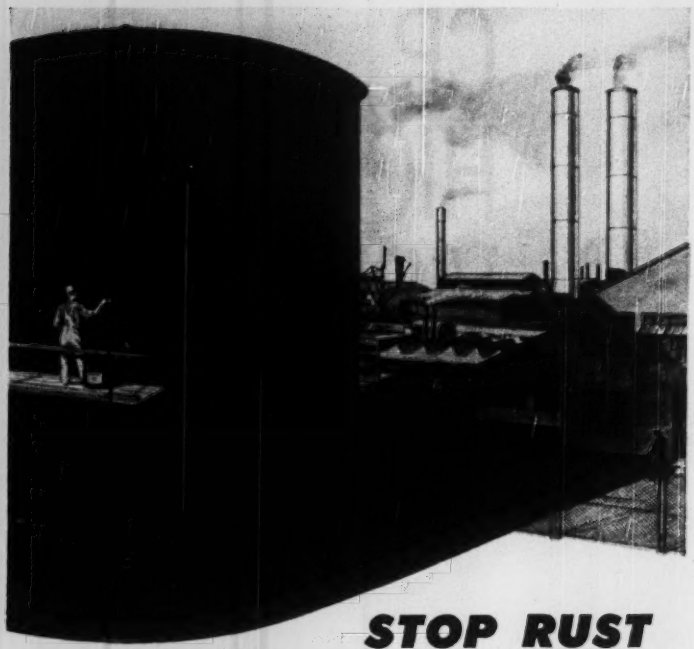

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** Names on request.*

If you have a rust problem, and would like a free survey and recommendations, send your name and address on your business stationery. A qualified factory representative will arrange this free service, which includes a trial size of Rust-Oleum for specific test purposes. There is no obligation on your part. Write today.

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2532 Oakton Street • Evanston, Illinois

learn something about the life, the flight and the habits of insect invaders on whose control the state now is spending $2,000,000 a year.

Danger!—Riding a manlift as well as operating power-driven hoisting apparatus has been declared a "hazardous" job by Secretary of Labor Maurice J. Tobin. Employing persons under 18 on such work is prohibited by the Wage-Hour Law.

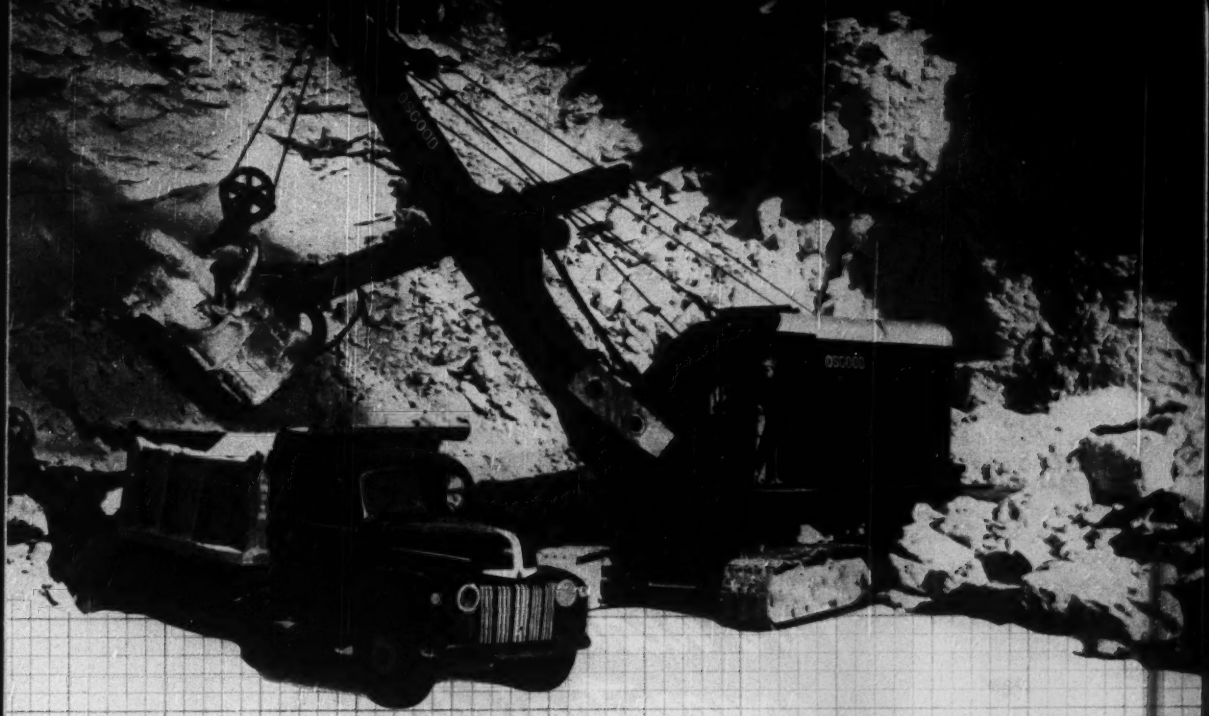
Giving it back to the Indians—The House Appropriations Committee has recommended a $7,500,000 appropriation to pay Indians of the Fort Berthold reservation, N. D., for losses caused by construction of Garrison Dam.

In the nick of time—It is expected that very early this fall six new hospitals will open their doors to veteran-patients. Totaling 1,450 beds, these VA hospitals are at Saginaw, Mich.; Marlin, Tex.; Grand Island, Neb.; Spokane, Wash.; Shreveport, La.; and Altoona, Pa.

It pays to complain (sometimes)—All Oregon cities along Highway 99, from Ashland to Portland, have joined in a plea to the State Highway Commission for widening of Highway 99-E to a four-lane thoroughfare from New Era to Salem. The highway is now four-lane from Portland to New Era, a distance of 20 miles, but has only two lanes for the remaining 30 miles to Salem, although the traffic count has increased from 4135 to 7219 a day in 10 years. Commission Chairman Ben R. Chandler told the delegation urging the project that a resurvey of Highway 99-E and 99 from Washington to California had been ordered, and that relief of traffic congestion between Portland and Salem will be achieved as rapidly as possible.

More money, please—Because of the lack of money, needed repairs to a Portland, Me., bridge will be put off for another year. The decision was made when it was discovered that a recent bond issue gave the county commissioners about $100,000 to do a job that would cost $187,000. Another $242,000 will be asked from the 1951 state legislature for new bridge piers and modernizing of the draw machinery.

Toronto's building boom—Biggest building boom in history of metropolitan Toronto, Ont., is continuing. Since beginning of 1950, building permits in the eight suburban Toronto communities totalled $74,306,435 for the first seven months, an increase of $23,443,190 over 1949.



loading pay dirt . . .

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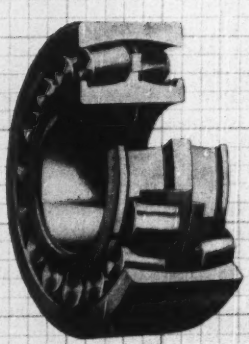

To move the earth and make it pay, Osgood power shovels must stay on the job day after day, with minimum time off for maintenance.

One way Osgood engineers make sure of efficient shovel performance and reliability under hard knocks is by using Torrington Spherical Roller Bearings on drum shafts and reversing shafts. In these tough applications, self-aligning bearings roll smoothly, assure uniform load distribution, even when momentary overloads cause shaft deflection.

You can give your equipment an extra margin of work capacity, and greater service life expectancy by specifying Torrington Spherical Roller Bearings. Our engineers will be glad to help you with details of design and application.

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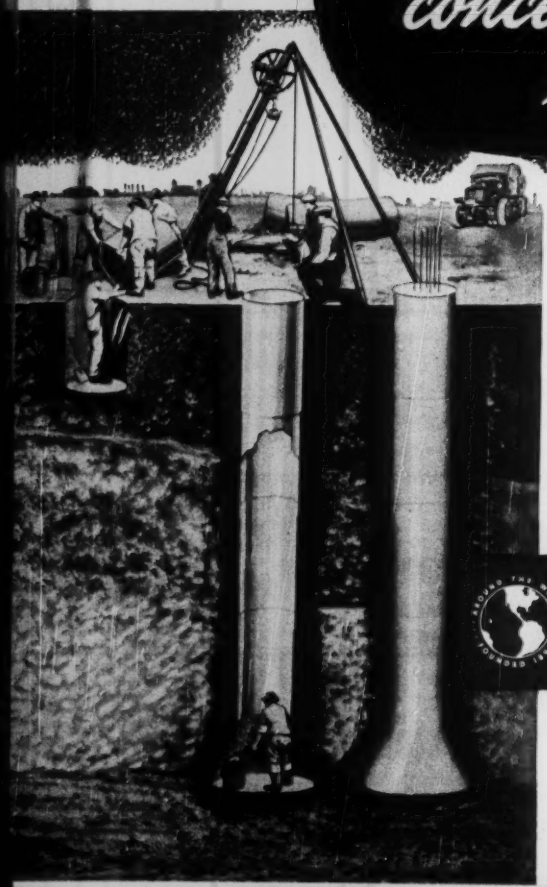
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, also cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.

At left, excavating starting pit and placing first cylinder. At center, excavating bell at bottom of the steel-lined shaft. At right, the completed caisson.

5. GOW CAISSON PILES

For heavy concentrated loads . . .



Raymond Gow caissons are efficient and economical for supporting heavy concentrated loads under certain soil conditions. The Gow method consists of hand or machine excavation carried on inside of telescoping steel cylinders. Where the caisson rests on hard ground, a bell is usually formed at the bottom to distribute the load over a large area. Where the caisson rests on rock, the bell is usually omitted. After excavation is completed, the steel cylinders are removed as the concrete is poured.

Because heavy equipment is not required and the steel cylinders are re-usable, Gow Caissons are economical in most soils. Your inquiry is cordially invited.

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THE CONSTRUCTION WEEK

LUMBER GHOST—Lumber dealers shook their heads when forest products were included in the first inventory control order of the National Production Authority. The order may handicap the rebuilding of yard stocks, now cut down by a freight car shortage on top of boom demand, according to the National Lumber Dealers Association. Within two months, the dealers look for an oversupply of lumber—and complete reversal of local-shortage conditions—provided the NPA's inventory regulation does not frighten distributors into cancelling or reducing purchases.

PRESTRESS PIONEER—Madison County, Tenn. has started construction of a bridge deck that applies prestressing principles about which, until now, there has been only speculation in this country. The prestressed deck will be made up of 8-in. precast concrete blocks with bottoms cast to accommodate prestressing wires.

WHO GETS THE WORK?—Reports that Ethiopia will get $7,000,000 in World Bank money, for road building, have U.S. contractors' new-business noses pointing toward that African country. French construction interests appear to have the best chance for this work.

THE JET DAMAGE QUESTION AGAIN—Just when experts had allayed fears that jet planes would ruin our airports' paved surfaces, another expert reopened the question. Delos C. Rentzel, administrator of CAA, told a ground-facilities conference at M.I.T. that although spillage of fuels on concrete and bituminous surfaces has not been found seriously damaging, the blast and high temperature of jet exhaust sets up a more vital problem. They soften bituminous materials, erode soils and damage concrete-joint material.

TREND REVERSAL?—The city of Detroit, refused federal money for two public-housing projects, will proceed with the aid of private financing, according to the city's Mayor Cobo. Federal officials said the proposed cost was too high.

INDIRECT MANPOWER CONTROLS—While there is no federal control on manpower (moreover, such controls aren't likely), U.S. employment offices are being instructed to give defense projects first claim on applicants for jobs.

APPRENTICESHIP LET-UP—The construction trades, since World War II the prime objectives of efforts by Labor's Bureau of Apprenticeship, now will have to keep up apprenticeship standards with less federal assistance. The bureau is shifting its efforts to industrial trades affected by the new push on military production.

CEMENT FOR NEW BRUNSWICK—A free site, tax concessions and fixed property valuation are inducements offered at St. John, N. B., to any commercial group that will establish a cement mill there. An "intolerable" cement-supply condition in the area prompted the offer.

RURAL ROAD AUTHORITIES—Nebraska might be coming up with a new idea in administrative districts, or authorities. A legislative committee may consider a state law authorizing districts for rural road improvements. Landowners within such a district would be assessed a special tax for improvements.

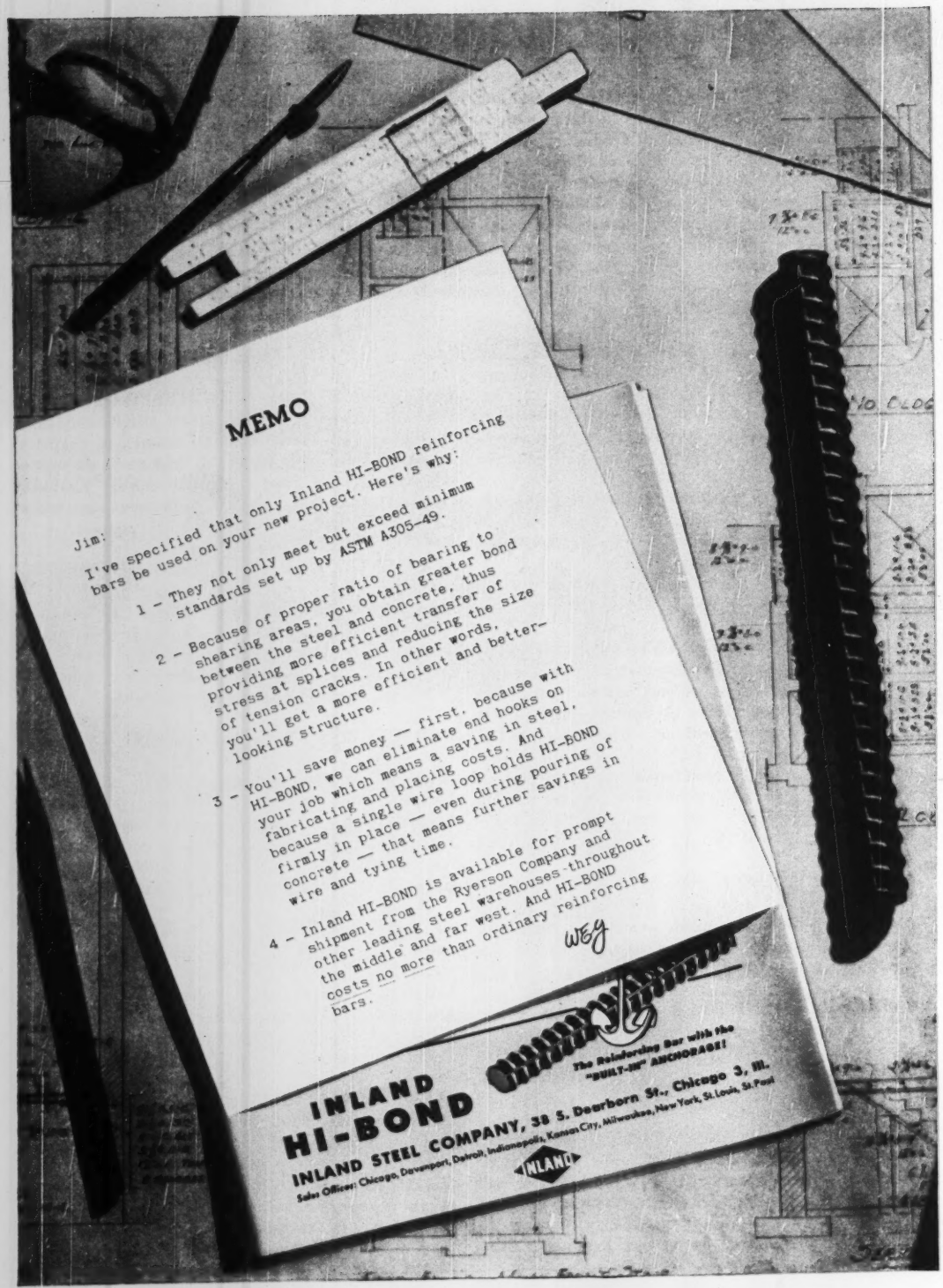
GOOD DEED IN A NAUGHTY WORLD—Karl Kennison, central figure in protest resignations from Boston's Metropolitan District Commission engineering staff (ENR Sept. 14, p. 30), had more than principles at stake—he stood to lose real money. Kennison was two years short of official retirement age; retirement would have carried a half-salary pension.

WILL IT GO THROUGH?—The question of priorities for materials has held up the sale of $31,000,000 in bonds for Oklahoma's Tulsa-Oklahoma City toll road. The state doesn't want to sell the bonds unless it can get priorities for materials to build the road. The question should be settled when the nature and extent of federal materials controls become defined.

PRIVATE POWER GETS A BOOST—One candidate sure of election in November has given private power a boost. He is Willis Smith, North Carolina Democratic nominee for the Senate. He says the Federal Power Commission should license Virginia Electric Power Co. to build a power dam at Roanoke Rapids, on the Roanoke River in North Carolina, below the U.S. Engineers' Buggs Island Dam.

ST. LAWRENCE SEAWAY—President Truman has made a new appeal for the St. Lawrence seaway and power project. He recently wrote the Great Lakes-St. Lawrence Association, "The demands of the present situation greatly increase the urgency of getting started on the St. Lawrence project and completing it as rapidly as possible."

LITTLE SCANDAL, BIG SCANDAL—Out of construction peculation in Pittsburgh may come a full-scale investigation of city and county government, rackets and graft. It started when the accidental death of a city employee revealed that he had been working at city expense on personal construction for two city officials. Now, both local and state officials are squabbling over the right to peg widespread inquiry on the alleged misuse of construction money.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3 – You'll save money — first, because with HI-BOND, we can eliminate end hooks on your job which means a saving in steel, fabricating and placing costs. And because a single wire loop holds HI-BOND firmly in place — even during pouring of concrete — that means further savings in wire and tying time.
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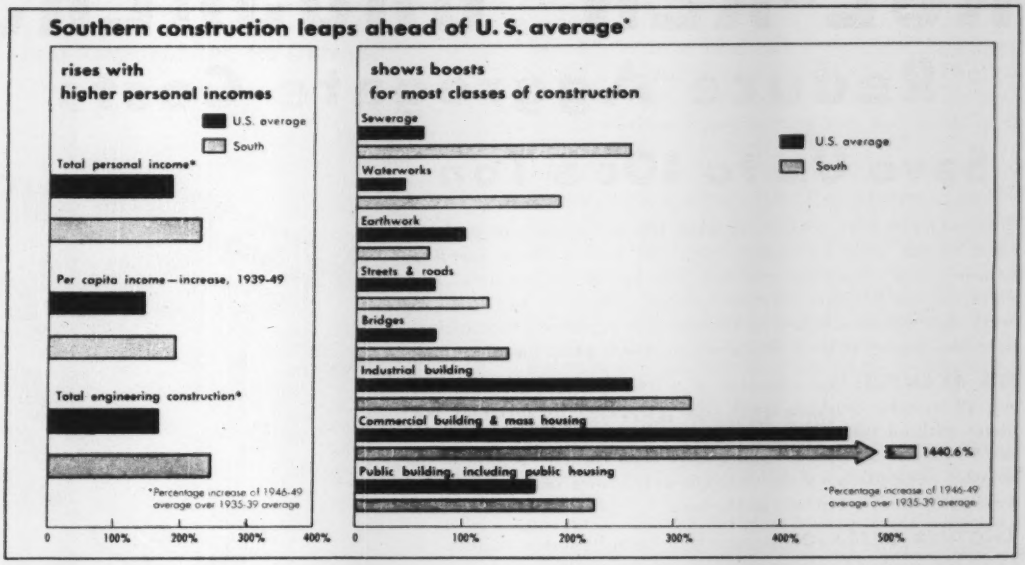
CONSTRUCTION TRENDS



This report—first in a series of seven analyses of regional construction trends—is based on a special economic study made by ENGINEERING NEWS-RECORD.

SOUTHERN CONSTRUCTION PROSPECTS BRIGHT

Construction is riding a long-run upswing below the Mason-Dixon Line. In the last ten years the upswing has become spectacular. It affects every aspect of Southern life.

Industrialization is the key to the new south. The old two-crop economy is gradually giving way to a more balanced combination of industry and agriculture. The last war speeded up growth of southern textile factories, and brought more new industry into the region. Before the war only 45 out of every 1,000 southerners were manufacturing production workers. By 1947 the number was up over 37%—to 62.

Construction always is heaviest in a healthy industrial region. Factories move people into towns, and expand needs for water supply, for sewers and for commercial and residential buildings. And industry produces more money than agriculture—makes it possible for people to pay for their building needs.

The effect of southern development shows clearly in an abrupt rise in personal incomes. Per capita income in the eleven southeastern states jumped from $310 in 1939 to $906 in 1949—an increase of 192% in ten years. During the same period, per capita income for the U. S. as a whole rose 146%.

Before the war, southern construction—as measured by ENR's contract awards—averaged 12.7% of the U. S. total. Since 1946 the figure has gone up to 16.4%. And postwar southern construction has run 246% over the 1935-39 average.

Mobilization will accelerate southern development, just as it did in the early forties. Much of our increased production of steel, aluminum, coal and chemicals will come from the south. Textiles—most important southern industry—is booming. Active industries will lure more workers from the fields by offering higher wages—and will create a new backlog of construction demand.

Industrial construction has reflected the growth of southern industry. Postwar industrial construction averaged 317% over the 1935-39 average. 1950 promised to be another good year, even before Korea. Now mobilization stimulates the need for new plants—and southern industry, concentrated in basic commodities, will get high priorities for industrial building.

Prospects are good for construction in the South. The trend toward industrialization will continue, and be speeded up by mobilization. And industry is the key to future Southern prosperity.

Increasing industrial activity will bring more workers into the city, and keep the level of urban construction high. Shortages of manpower and materials may bring a temporary cutback in private work. But rising personal incomes will create a new backlog of civilian demand—especially for houses and commercial.

The full force of southern development hit construction only in the last five years. As long as industry continues to move south, southern builders will prosper.

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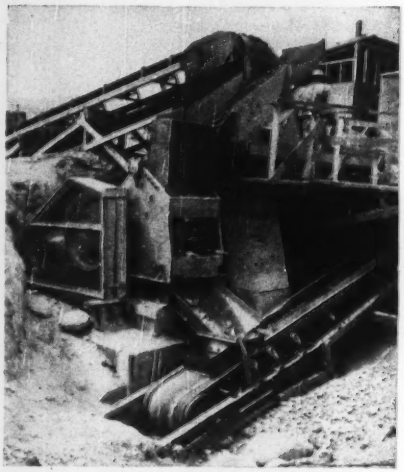
Reduce Aggregate Costs

Save Up to 10c a Ton

Wherever you have a hard crushing job, installation or replacement of old style equipment with the new modern Kue-Ken Crushers and Gyracones will save you up to 10¢ per ton. Jaw plate cost on Kue-Ken Crushers never exceeds 1¢ per ton. In every case where a Kue-Ken Crusher has replaced other makes, operators report at least 10 times longer jaw plate life alone.

FOR EXAMPLE: One operator of a Kue-Ken Jaw Crusher has run 18 months crushing hard river gravel on the original jaw plates without turning them; at least another 14 months' service can be expected after the plates have been turned—a total of 32 months. The plates on the previous well known make of crusher were completely worn out in 90 days.

ANOTHER OPERATOR reports that he only makes adjustment every two weeks to compensate for wear to crushing faces. With the previous well known gyratory that he used on the same job, adjustment was required at least once or twice every eight hours to maintain product size.



16 months per set of jaw plates on Kern river gravel.

These Features SAVE You Money

GREATER CAPACITY. Balanced construction, "crankcase type" sealed and filtered lubrication permits 50 to 60% more crushing strokes per minute. The 24" Kue-Ken will produce the same capacity as an ordinary 36" crusher.

LONGER LIFE. Kue-Ken jaw plates wear 5 to 10 times longer because fast-wearing rubbing and abrasive action is eliminated. Saves costly replacements.

OVERHEATING ELIMINATED. Larger, heavier, stronger shafts with greater bearing surface reduces bearing pressure and wear. Bearings are sealed on filtered oil and pump-lubricated. Result: complete protection from dirt and abrasive, a crusher with long life at full speed production.

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MORE PRODUCTION WITH LESS POWER. Kue-Ken Crushers using the exclusive Kue-Ken principle of "crushing without rubbing" give 2 to 3 times greater capacity than old-style crushers with less horsepower, substantially reducing operating cost.

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Local Responsibility for Defense

COMMENDATION is due those who prepared the report on civilian defense just sent to Congress by President Truman for the emphasis placed on local responsibility for the success of any such program. In due course, a Civilian Defense Administration is to be set up in Washington, but it is only to be a coordinating agency, supplying educational material and supervising such general matters as the air-raid warning system.

Two parts of the report are of special interest to engineers, the sections relating to shelters and to minimizing interruptions to utilities—water, gas, light, power and sewerage. In the section concerning shelters, the impossibility of providing universal protection against atomic bombs is noted, and stress is laid on the importance of making the most of the shelter that is provided by existing buildings, cellars, vaults and subways. Here is a fruitful field of study for engineers and one providing opportunity for the exercise of much ingenuity.

Utilities are certain to suffer in any large bombing attack, and since it is imposible to protect them against such damage, a major problem for engineers will be that of limiting the effect of the damage by providing more interconnection and by increasing the number of areas that can be cut off to segregate damaged parts of a utility system from those that can continue to function.

Here also, the question for engineers will be chiefly that of making the most of available facilities since any large amount of new construction does not appear possible.

Of equal, if not greater importance, is the matter of personnel. Analysis of what may happen to public utilities in a bombing attack will show that the staff now operating any utility is wholly inadequate for such an emergency. Some will be killed or injured in the attack; others will be isolated by damage to communication and transportation systems and will not be able to function. For a water system, as an example, such an eventuality will mean that in every part of a city there must be several volunteer workers who have been made familiar with the location and purpose of all control valves in that area and who are equipped to close or open those valves if an emergency makes that necessary.

Here is a field of activity in which the local sections or chapters of engineering societies should be able to render valuable service. Their members would make ideal persons for emergency assignments as aids to the regular staff of the utilities serving areas in which they work or live.

The same will be true of the task of clearing up after a raid and restoring damaged structures to usefulness. In some states the construction contractors already are being mobilized for this work. They can be helped very materially if local engineers are available to examine damaged structures and advise as to their structural soundness.

But unless the local engineers, acting through the local engineering groups, take the initiative in making their qualifications known to the local defense authorities they probably will be overlooked. Which thought serves only to reinforce the conclusion that the success of the civil defense program will depend on the extent to which the local people accept responsibility for it. Unless each of us accepts that responsibility, civil defense in our region will not come up to its possibilities.

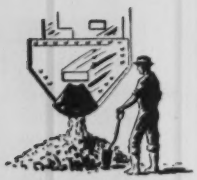
Lessons from Walnut Lane

WHEN Philadelphia's Department of Public Works decided in 1948 to build the first prestressed concrete bridge in the U. S., it was predicted in these pages that this action would be of great benefit to the profession. Subsequent events have supported that prediction. Judging by the current rate of progress (ENR Sept. 21, p. 32), by the end of this year engineers should be able to weigh all the lessons provided by the enterprise of the Department of Public Works.

Already, it is possible to set down a few significant facts. It has been learned for example that the concrete—proportioned and mixed in accord with normal American practice—is better than the bridge's Belgian consultant, Gustave Magnel, gave it credit for being; that the American-made steel wire was substantially stronger than had been planned for; and that American labor quickly mastered the special prestressing techniques. The result is a sturdy, sound structure, but also one that is overdesigned and therefore more costly than a second one need be.

Disadvantages were also encountered. Making up the cables was tedious work. Threading the cables through the girders wasn't easy. The low-slump concrete slowed concrete placement. These may or may not be inherent difficulties.

In any event, as the job approaches completion other facts will be revealed, and careful analysis of what was done and what might have been done differently will bring out others. Now that Philadelphia has taken the pioneer step in building the first prestressed concrete bridge in the U.S., every possible lesson in its design and construction should be made known. Those who may be expected to build the country's second prestressed bridge—and a surprising number are exploring the problem—will be greatly benefited. And in that direction lies progress in one of the most promising developments in concrete construction in many years.

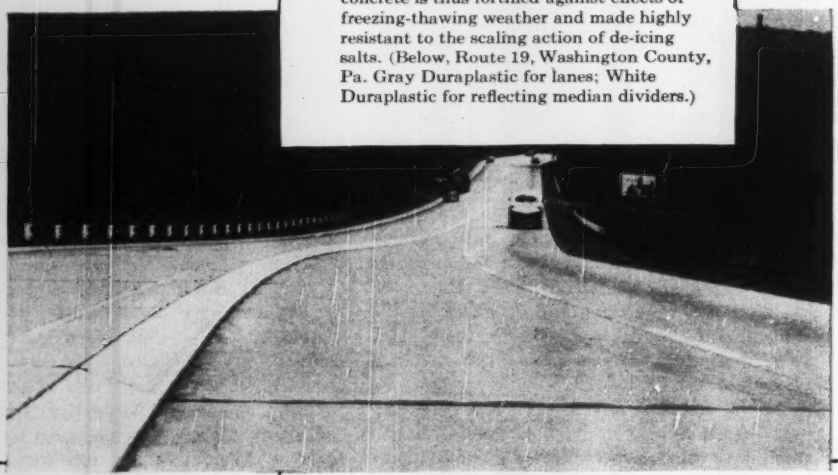


Better for paving work

Duraplastic air-entraining portland cement requires less mixing water for a given slump, makes concrete more workable, more plastic, more cohesive, more uniform. The mix dumps, spreads, screeds and finishes easily; allows finishing closer to paver, earlier protection for curing.

Makes more durable concrete

Duraplastic air-entrained concrete minimizes bleeding and segregation. Finished concrete is thus fortified against effects of freezing-thawing weather and made highly resistant to the scaling action of de-icing salts. (Below, Route 19, Washington County, Pa. Gray Duraplastic for lanes; White Duraplastic for reflecting median dividers.)



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ENR-D-169

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SEPTEMBER 28, 1950 VOL. 145 NO. 13

NSRB report blueprints industry civil defense role

National Security Resources Board "blue book" tells cities, construction industry how defense should be organized; states and communities are keys; funds left in doubt

State and local officials last week got the basic civil defense plan they had been waiting for.

In a 160-page blue book, "United States Civil Defense," they had the federal government guideposts they needed before going ahead with their own plans.

Outlining a complete program for civil defense—policy, organization, and operation—the document was produced by the National Security Resources Board.

One question that it did not attempt to answer: Where is the money coming from? NSRB Chairman W. Stuart Symington said only that the program will be "expensive": The plan proposes overall cost allocations—federal, state and local.

The report carried the first official outline of the responsibilities of the construction industry in time of disaster.

Briefly, it called for mobilization of construction facilities, men and engineering skill—a program already well advanced in the thinking of industry leaders.

Included in the report was suggested legislation to create an independent agency—the federal civil defense administration—to coordinate all civil defense activities. Congress postponed action, pending its current fence-mending adjournment.

Meanwhile, President Truman said he would establish a temporary Civil Defense Administration with a small staff.

An executive order setting up the temporary agency was expected this week or next. Financing will come, temporarily, from the supplemental defense appropriation.

• **Local responsibility**—Basic operating responsibility for civil defense, the NSRB report states, lies with the individual and his local government: The federal government will take no hand in local operations. Federal responsibility—beyond setting up the national plan—will consist of furnishing certain training courses and facilities, providing some essential equipment, coordinating operations between states, and keeping the states informed on stockpiles of supplies needed in time of disaster.

(As part of its function, the U. S. government is carrying on research and developing structural standards for bomb shelters to be used in local communities. Design criteria will be developed and made available in personnel shelter manuals. The first of these—presumably to cover general design principles—is expected to be ready soon.)

Within the framework of the national plan, the state is the key operating unit.

Under the governor, the state civil defense agency both supervises all planning and also directs the sending of supporting units from other areas in the state to a community that has been hard hit by an emergency.

In addition, each state is to make interstate plans with its neighbors. An example is the civil defense agreement already proposed by Gov. Thomas E. Dewey of New York for the ten northeastern states, similar to the mutual aid pact already signed between New York and New Jersey. In their interstate planning, the states will cooperate with the federal government.

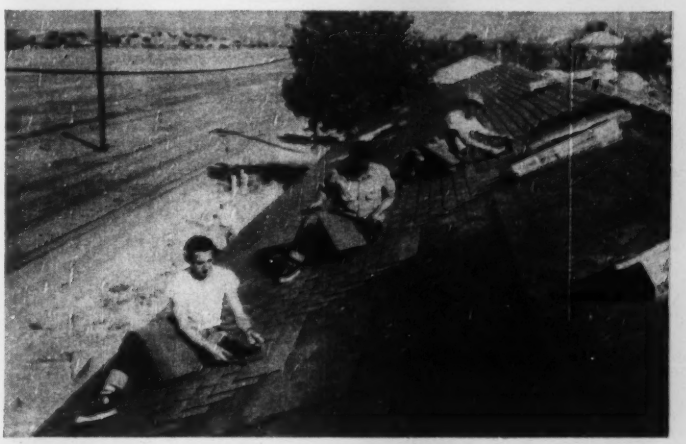
• **Governor is key man**—With the chain of command starting at the state level, the governor holds the responsibility for civil defense operation in his own state.

Where the governor's authority is not already established by law, it probably will be necessary to enact legislation granting him the necessary powers.

So far, only 18 states and the District of Columbia have civil-defense enabling legislation on the books, but 43 states have state civil defense directors, many of them holding office by virtue of executive orders. The 18 states with civil defense laws are: California, Florida, Idaho, Indiana, Maine, Maryland, Michigan, Nebraska, New Hampshire, New Jersey, New York, Nevada, Ohio, Oregon, Rhode Island, South Dakota, Vermont and Washington.

As one of the duties of the states, the NSRB report mentions in a general way the assuming by each state

(Continued on page 24)



ARMY CAMP REHABILITATION—Scenes like this are being enacted at many points in the United States, as military remobilization gets under way. Here, workmen re-roof one of 1,300 buildings at Camp Roberts, near Paso Robles, Calif. Most of the camp's buildings are getting new covering. (Wide World photo)

NSRB report blueprints civil defense

(*Continued from page 23*)
of its share of financial responsibility. A few states already have appropriated money for the purpose: Massachusetts and New York, $100,000 each, and Colorado, $25,000.

Until Congress gets around to passing legislation and appropriating money under it, President Truman will finance the operation of the temporary federal agency out of discretionary funds allotted to him in the supplemental Defense Appropriation Bill.

All federal assistance to communities will funnel through the states, which will allocate federal funds, supplies and equipment to their counties, cities and towns. In addition, the states will furnish supervision, instructors and facilities for training programs.

• **Community is base**—Basic organization for civil defense centers in the community. Each city, county or town is to organize its own civil defense forces.

• **Critical target areas**—Most likely to be attacked—have been determined by the U. S., and the governors have been informed regarding them. These areas are to be fully organized for atomic attack. Less critical areas, in turn, should be organized not only for their own protection but also to aid others if need be mobile support units.

Special ordinances may be necessary in setting up local organizations. The NSRB plan calls for a full-time civil defense director under the mayor or other chief executive. This man would have responsibility for all local civil defense functions.

Both state and local organizations would be built around existing departments—such as public works, highway, water, sanitation and health services. Incorporated into the organization with these public services would be construction, maintenance and operating units of private utilities and contractor groups.

• **Construction's part**—These units would be particularly important to the engineering branch of the Civil Defense Organization. This branch, called the Engineering Service in the NSRB report, is charged with a number of essential functions, both preceding and following attack.

Engineering service's pre-attack duties include: (1) Precautionary measures to safeguard water, gas, electricity and food supplies, and sewage and waste disposal systems; (2) Application of protective design standards to shelters and to the strengthening of existing structures, and (3) help in organizing, equipping and training another branch of the Civil Defense Organization—a rescue service to remove people from shattered buildings.

Immediately after an enemy attack, the Engineering Units would take care of all clearance and demolition work and do the heavy construction and repair jobs necessary to keep community services going throughout the emergency period. In addition, the engineering crew would help the rescue service free trapped persons and remove casualties.

Volunteer forces to be coordinated by the engineering service include all experienced construction men, particularly equipment operators, mechanics and blasters.

With these experienced men the engineering service will utilize larger labor crews in "pioneer units" composed of volunteers who may or may not have had experience in construction.

• **Everybody's in the act**—As outlined in the basic plan, all construction and maintenance forces—both public and private—are to take part in civil defense activities.

The state and local organizations have the responsibility for working out plans to mobilize the personnel and equipment of public works and utility departments, contractors, equipment and material dealers, utility companies, industrial maintenance and construction groups, labor unions and other sources of the needed manpower, machines and materials. National and local associations of contractors and equipment dealers, as well as other groups, are already cooperating on plans of this kind.

Civil defense planning was assigned to NSRB in March 1949. Before that, the Department of Defense had produced the Hopley Report, which furnished much of the material for the plan released last week.

With completion of the NSRB document, Paul J. Larsen, director of the Civil Defense Office, asked to be relieved of his duties. James J. Wadsworth now heads the office as acting director. He had formerly been deputy director.

Emergency spurs industrial expansion

The mobilization program is putting fire under expansion of industry.

In steel, copper and aluminum, particularly, the outlook is for the biggest buildup of the nation's productive plant in history.

Already, government figures indicate 1950 may be the biggest—and the experts predict 1951 and 1952 will surpass this year.

With military needs being revised upward almost daily, the Truman administration obviously blesses the trend. And business, itself, should take note of the fact that a big chunk of the expansion will be paid for out of private money—rather than through huge government loans as in World War II.

Administration advisers figure that plant additions, modernization, and purchase of new tools are the key to beefing up the military without dangerous borrowing. A 350-billion economy, for example, can pay more of the freight for preparedness than today's $270-billion economy.

• **Steel first**—Expansion is coming first in steel, and in essential shortage items such as aluminum and copper—light metals that go into electric generators and lines as well as into airplanes and electronic gadgets the military uses to fight with.

So long as the expansion stays within the industries where more is needed to deliver the military goods, the Administration will be helpful. But it has powers in the new control law to throttle nonessential expansion that uses up critical materials.

• **Not enough?**—After the war, steelmakers and other basic material producers were under pressure from Washington to expand still more. The prod: Shortages demonstrated that the postwar needs of the economy had been dangerously underestimated; and since private industry hadn't measured up to its responsibilities, the government might have to step in and get things done.

Steel plans announced pre-Korea promised new annual capacity of up to 105.75-million tons by 1953—compared with today's 99.5-million.

That's a lot less than some government steel experts—the Department of Agriculture's Louis Bean, for instance—say we need. Bean told the Celler Antimonopoly Committee this spring there should be 118- to 123-million tons of steel capacity.

• **Other metals**—Take aluminum. There, the industry-leading Aluminum Co. of America has to take its every cue from the government. And government policy is to build up ALCOA's competitors.

Copper is especially tight. Producers are looking for premium price help to get out the extra needed metal. Another immediate shortage metal is manganese. The government has already spent $600,000 for a pilot plant in Arizona, and will spend millions before the project goes into full production.

Business pays half in stop-gap tax bill

New corporation tax schedule scraps 38% ceiling for 25% normal tax and 20% surtax; base earnings $25,000

Now that the stop-gap tax bill is out of the way, Congressional tax writers are turning to next year's revenue legislation.

All told, the two bills will probably cost taxpayers an extra $12-billion.

• **The stop-gap bill**—The bill just passed is scheduled to bring in $4½-billion—roughly half from business.

Of particular interest to construction and engineering firms are these new taxes on corporation profits.

The new schedule eliminates the old 38 percent ceiling. Out, too, goes the extra high "notch" rate on income between $25,000 and $35,000.

Under the new bill, corporations will pay a normal tax, plus a surtax. The normal tax will be 25 percent on all income. A surtax of 20 percent will apply to income above $25,000.

These new rates apply to tax years beginning after last June 30. If the company's tax year began before June 30, it can use an alternative normal rate of 23 percent, surtax of 19 percent.

The Mills plan to make corporations pay taxes early in the year will start gradually in 1951. That year, they will owe 60 percent of their tax in their first half, in 1952, 70 percent; and so on.

A solitary note of relief: companies that expand or build plants for rearmament are going to be permitted to write off certified emergency facilities within a five-year period.

The law cracks down on some loopholes, eases up on others. For example:

• It taxes investment income of insurance companies.

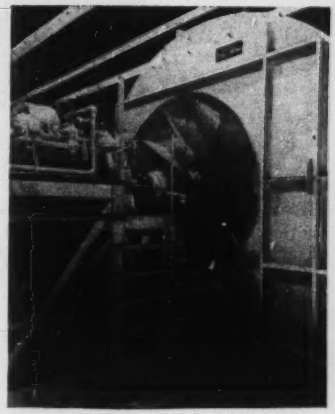
• It unmasks "collapsible" corporations, making their profits income instead of capital gains.

• It exempts from income taxes stock distributions in "spinoffs"—transfers of assets from an existing corporation to a new one, involving no real change in ownership.

• **Excess profits next**—The bill that Congress is likely to pass next spring (though consideration may start this November) probably will cost taxpayers more than $7-billion.

Bulk of the money may come from an excess profits tax; the President asked for one and both Houses have gone on record in favor of a levy that would be retroactive for part of 1950.

As yet there has been no word from the White House or Treasury on details, but chances are that any new scheme will resemble the one employed in the last war.



GIANT FAN—Air for a $1,500,000 conditioning system Kauffman's department store Pittsburgh, Pa., will be forced through six miles of duct by this supply and exhaust fan, which can move 4,000,000 cfm at 250 fpm. A feature of the duct system is the use of four former elevator shafts for verticals. Modern high-speed electronically controlled elevators have been installed in the store's other twelve shafts, to do the job formerly done by sixteen lifts. Air will be distributed over 13¼ acres of floor area in the 12-story building, going from verticals through small horizontal ducts to 3,500 pressure-reducing, jet-type diffusers. Hoffman and Crumpton, of Pittsburgh, were architects, and Mellon-Stuart Co. the general contractor.

Maj. Gen. E. M. Markham dies, ex-Chief of Engineers

Maj. Gen. Edward M. Markham, (ret.) 74, former chief of the U. S. Army Engineers and former New York City commissioner of public works, died at Albany, N. Y., Sept. 14.

Born in Troy, N. Y., General Markham was graduated from the U. S. Military Academy in 1899. Thereafter he served for 39 years with the Army engineers, during which time he directed many long-range Army engineering projects, especially channel and harbor works on the Great Lakes.

From 1906 to 1912 he was assistant engineer for the District of Columbia. In 1916 and 1917 he was professor of practical army engineering at West Point. In 1917 he organized the 303rd Army Engineers. In 1933 he was made Chief of Engineers. He retired in 1938. For a short time he was commissioner of public works in New York City and then became president of the Great Lakes Dredge and Docks Co. of Chicago. He finally retired five years ago and made his home in Albany, N. Y.

Denham resigns NLRB; policy split may end

Easing of Taft-Hartley enforcement seen for construction industry; new appointment expected soon

Resignation of Robert N. Denham, General Counsel of the National Labor Relations Board affects Taft-Hartley's impact on the construction industry on three fronts: Elections, jurisdiction, and secondary boycotts.

• **Secondary boycotts**—Denham has applied this part of the law more strictly than the board. As a result, contractors have been able to get quick respite from this labor abuse by the law's provision for a mandatory and speedy injunction. (ENR Sept. 21, p 26)

• **Elections**—Denham found it impracticable to hold elections in those parts of the construction industry where employment is too fluid. Last Dec. 19 he announced a policy of waiving elections and not issuing unfair labor practices charges based on the absence of an election. (ENR Dec. 22, 1949, p 23). But last June 6 the board refused to go along, while pointing out that, as a practical matter, it could not act on such a charge unless Denham first prosecuted a contractor or union on that point. (ENR June 15, p 23)

• **Jurisdiction**—Denham has been more liberal than the board in bringing within the purview of the Taft-Hartley law, disputes on small construction jobs which the board has been inclined to pass up because the job was "essentially local in character."

The new general counsel, if he were so inclined, could swing closer to the board's view on secondary boycotts and jurisdiction. This would mean an easing of the law as far as the construction industry is concerned.

On elections, it is doubtful that he would, or could, deviate from Denham's policy. The reasons are both practical and political. From the practical side, it is admitted by almost everybody that elections cannot be held on most construction jobs. Nor do the contractors and unions want them. Politically, he will not issue unfair practice charges based on the failure to hold an election. That is because most such charges are brought by individuals in closed shop situations and would be opposed by both contractors and the AFL building trades unions.

Announcement of a successor to Denham should come quickly since no unfair practice charge can be issued, nor can injunctions be obtained in secondary boycotts until a successor takes office.

Denham says he plans to practice law in Washington.

Boston commissioners vote probe of MDC

F. W. Gow replaces Kennison as former chief engineer makes new charges of staff demoralization

The five commissioners of the Boston's Metropolitan District Commission have voted an investigation into the commission's hiring practices.

The inquiry is prompted by the resignation of three top engineers in protest of payroll padding and the hiring of ill-qualified personnel for their staff. (ENR Sept. 14, p. 30)

In the wake of these engineer resignations that have been the talk of the month in Boston, Frederick W. Gow has been appointed acting chief engineer of the Metropolitan District Commission's construction division. Gow, with the MDC since 1926, was head construction engineer.

Gow occupies the place vacated by the resignation of Karl R. Kennison, chief engineer for 12 years.

As to future plans for the men who resigned, Kennison plans to engage in private consulting practice, from his home address at 28 Byfield Road, Waban, Mass. Stanley M. Dore, deputy chief engineer with 20 years service in MDC, will become deputy chief engineer of the Allegheny County Sanitary Authority, Pittsburgh, Pa., and Lawrence M. Gentleman, designing engineer with a 21-year record at MDC, is joining Fay, Spofford & Thorndike, Boston consulting engineers.

• **Charges amplified**—After making initial charges of payroll padding and loss of construction-department morale, reported in ENGINEERING NEWS-RECORD a week ago, Kennison amplified his statements. He said that in the past three years more than 600 appointments and promotions were made by the MDC in his engineering division without a single recommendation by him.

On May 23, 1947 he wrote the commissioners objecting to the failure to consult him on appointments and promotions and declaring that he could not be responsible for qualifications of the new men. Though the appointments and promotions sometimes were deserved they had a demoralizing effect on division employees.

A similar charge that the governor's office was interfering in MDC affairs was made by a MDC commissioner, H. E. Stevens. He charged that since the construction division is not under civil service the administration loaded it with personnel without regard to their ability to perform the work and apparently in some cases with no expectation that they would perform any work at all.

WHAT GOES ON HERE?—Butch, in foreground, attempted to find out what engrossed his young master, Tommy Brons, on the other side of the construction barrier around the site of a new bank building in Harlingen, Tex. Holes drilled by the contractor at various heights didn't include one for Butch. (Wide World Photo)

Automatic jailing sought for Culver City councilmen

If the State of California has its way, election to the Culver City, Calif., city council automatically carries with it a jail sentence and full responsibility for that city's lingering battle over its share of costs in the Hyperion sewage treatment plant.

Two newly elected Culver City councilmen have been summoned to court to show cause why they, like the city's other councilmen, should not be found in contempt for the community's failure to assume its share.

Last spring Culver City's Mayor J. Ray Klots and four councilmen were sentenced to jail terms for not appropriating funds to pay the city's share of Hyperion (ENR June 15, p 26). The sentences are now on appeal.

The two newly elected councilmen contend that they are exempt from the action, as they were elected more than a year after the contempt order.

But California's Dep. Atty. Gen. Bayard Rhone, who's handled prosecution of several city councils over Hyperion payments, says the violation of the court order is continuous.

Culver City has voted a bond issue to cover a portion of its share of the $41,000,000 sewage disposal project. Last month a superior court judge ruled that Culver City doesn't have to pay for using the sewage line because a 1922 contract exempting it still is valid. Only the treatment plant costs are involved in the contempt order against the councilmen.

Ohio auditor returns engineers' vouchers

Ohio Turnpike Commission enabling act under fire; plan for separate financing may rule out state funds

Vouchers for $55,000 in engineering fees for services rendered Ohio on its turnpike have been returned to two engineering firms by State Auditor Joseph T. Ferguson.

Ferguson says that he can find no authority under the provisions of the state's turnpike act authorizing the Director of Highways to delegate, on contract or fee basis, authority to make studies on turnpike projects.

At stake are the vouchers of two companies, each amounting to $27,500.

One of these represents fees for an engineering survey for the pike conducted by the J. E. Greiner Co. of Baltimore, and the other for traffic studies by the firm of Parsons, Brinckerhoff, Hall and MacDonald, of New York.

Already the engineering studies have produced a proposed route for the state highway. (ENR Sept 14, page 35)

The auditor's stand forces a test of the constitutionality of the act setting up the Ohio Turnpike Commission.

Faced with this situation, State Highway Director T. J. Kauer said, "The turnpike act specifically provides for the hiring of outside engineers. On Aug 23, Atty Gen. Herbert S. Duffy advised Ferguson that such procedure could be followed."

Status of the proposed turnpike as a state highway is in question since the enabling statute calls for financing the enterprise through a bond issue not guaranteed by the state.

Some time ago the Supreme Court of Ohio held that the State Board of Control could release $600,000 to the highway department for preliminary studies on the project.

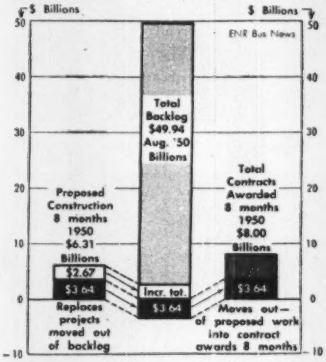
The preliminary engineering studies are about half completed, and if the work is not interrupted, will be finished Dec. 1, according to Kauer's estimate.

Tampa Bay Bridge O. K.

On Sept. 19, the Florida State Improvement Commission authorized construction of the long-awaited bridge across Lower Tampa Bay. At the same time the agency approved issuance of $21,250,000 in bonds to finance the job. The bridge will cut about 40 mi. from the road distance between St. Petersburg and Sarasota.

CONSTRUCTION BUSINESS

Proposed construction backlog hits new record high


$ Billions
$ Billions
ENR Bus News
Total Backlog $49.94 Aug. '50 Billions
Proposed Construction 8 months 1950 $6.31 Billions
Total Contracts Awarded 8 months 1950 $8.00 Billions
$2.67
$3.64
Incr. tot. $3.64
$3.64
Replaces projects moved out of backlog
Moves out— of proposed work into contract awards 8 months

Construction backlog

The measured backlog of proposed engineering construction in the United States reached $49,939,756,000 by the end of August. This is up $2,673,355,000 since the first of the year as reported by ENGINEERING NEWS-RECORD.

Actually new proposed work for the eight months totals 6,314,566,000. But in this period $3,641,211,000 moved out of the backlog as proposed projects went under contract. So the net increase in the backlog is the difference between total new proposed construction reported and the amount needed to replace the projects removed as they went under construction.

Proposed engineering construction backlog
Increase by regions

Region	Aug. 1950	8-mo. change
New England	$2,401,315,000	+$41,216,000
Mid Atlantic	12,282,536,000	+262,347,000
Southern	5,739,091,000	+560,064,000
Mid West	8,063,832,000	+799,927,000
W. of Miss.	13,008,806,000	+854,964,000
Far West	8,444,176,000	+154,837,000

Increase by class of construction

Public works	Aug., 1950	8-mo. chg
Waterworks	$1,345,717,000	+$146,742,000
Sewerage	2,170,064,000	+37,621,000
Bridges	1,556,132,000	+78,379,000
Earthwk, Irr.	7,315,111,000	−134,992,000
Streets, Rds	4,471,692,000	−84,304,000
Buildings	11,554,751,000	+686,251,000
Unclassified	4,684,061,000	+31,477,000
Private		
Bridges	45,813,000	+2,563,000
Ind. Bldgs	4,766,254,000	+343,747,000
Com'l Bldgs	6,764,348,000	+984,826,000
Unclassified	5,263,813,000	+581,045,000
Private	16,842,228,000	+1,912,181,000
Public	33,097,528,000	+761,174,000
Fed Gov't	9,748,647,000	−189,064,000
St & Mun	23,348,881,000	+950,238,000
TOTAL	**$49,939,756,000**	**+$2,673,355,000**

The areas contributing most to this backlog increase are the Southern states, $560 million, Mid-West states $800 million and West of Mississippi states, $855 million.

By class of construction the largest gains are in commercial building, including mass housing, $985 million, public building, $686 million, industrial building, $344 million and private unclassified construction, $581 million.

The distribution of the current backlog and its rise in the past eight months are shown on the accompanying tables.

Army lumber auctions

At auctions held in Portland, Ore. Sept. 5-7 and Atlanta, Ga. Sept. 12, 13 regional buying offices for U. S. Engineers bought 45 million board feet of Douglas fir and 65 million board feet of Southern pine. The Government procurement officers had indicated before the bidding that they could help get cars for shipping the lumber purchased. Delivery starts Sept. 30 and continues to Nov. 30.

Prices of Douglas fir at Portland were $10 to $14 a thousand less than the going mill price of $88.

Atlanta prices ranged from $92 to $95 a thousand on 1x6-in. material, $95 to $98 a thousand on 1x8-in. Some No. 2 construction hardwood was accepted as an alternate for No. 2 Southern pine. The hardwood went at $10 to $15 less than the pine prices. About 20% of the total was 1x10s and 1x12s with prices ranging from $100 to $105 a thousand and a scarcity of these sizes. Twenty percent was in 4x4s at $92 to $95.

Prices for No. 2 Southern pine were $20 to $25 a thousand over June of this year and $30 to $37 a thousand over June, 1949.

Housing starts still high

Housing starts for August were 141,000, only 2.1% below July starts, as announced by the Bureau of Labor Statistics.

The figure for May has been revised upwards to 149,100 from 140,000 to set an all-time high.

The 8-month total of starts for 1950 is 988,400, 54% above starts for the same period in 1949, when the total was 644,100.

Equipment shipments at highest postwar rate

Excavating and earthmoving equipment moved into the field to the tune of $150 million in the second quarter of 1950.

This is the highest rate of construction machinery shipments on record. It is 24% higher than first quarter shipments and it is almost 37% above the 1949 average. But it is only 15% above average shipments for 1948, which were at the previous record-breaking rate.

Second quarter shipments of road construction and maintenance machinery show the largest increase, 36%, above the first quarter. Construction machinery for mounting on tractors increased 34%, tracklaying tractors, 17%, power cranes and shovels 13%. The accompanying table shows how these construction machinery shipments compare in value.

Exports of excavating and earthmoving equipment climbed to $29.3 million for the second quarter. This is close to the postwar highs in the second and fourth quarters of 1949 that averaged $30 million and it compares with the low average of $19.8 million for 1948.

Excavating and earthmoving equipment
Value of shipments by class of product, 1947-1950

Class of product	Value of shipments (thousands of dollars) 2nd Qtr 1950	1st Qtr 1950	1949	1948	1947
Total	$149,678	$120,749	$440,092	$513,356	$432,408
Power cranes & shovels[1]	26,232	23,287	89,204	158,586	132,836
Rd-constr & maint mach	31,024	22,794	96,816	117,908	97,272
Constr mach for mounting on tractors	14,664	10,970	38,177	44,645	40,722
Tracklaying tractors	64,090	54,821	196,622	167,341	134,361
Wheel-type h-d tractors (incl 2 wh & 4 wh)	6,246	3,296	12,499	13,962	15,791
Portable-well & blast hole drills	643	1,285	6,774	10,914	11,426

[1] Excludes value of front-end attachments, sold separately.
Valves used: cranes and power shovels—cost to ultimate user; other equipment—net billing price, fob factory.

Excavating & earth moving equipment
Shipments by quarters

		Millions			Millions
1950	2nd	$149.7	1948	4th	$139.1
	1st	120.7		3rd	124.2
1949	4th	92.6		2nd	129.3
	3rd	98.6		1st	129.9
	2nd	120.1	1947	aver	109.3
	1st	126.7	1946	aver	70.6
Exports					
1950	2nd	$29.3	1948	4th	23.8
	1st	27.9		3rd	18.1
1949	4th	29.7		2nd	16.8
	3rd	26.5		1st	20.6
	2nd	30.3	1947	aver	19.1
	1st	26.6	1946	aver	N.A.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 71, went to press.)

Bakery—Ragner Benson, Inc., Chicago, Ill., has been awarded contract to build baking plant for National Biscuit Co., in Chicago, at an estimated cost of $12,000,000. Alexander Crosett, New York, N. Y., is architect, with Everett R. Quinn, Chicago, as associated architect.

Steam Generating Plant—Southern California Edison Co., Los Angeles, Calif., plans $38,000,000 steam electric generating plant in Wilmar, California.

Generating Plant—Fluor Corp., Los Angeles, Calif., will design and construct steam electric generating plant in San Bernardino, Calif., to cost about $18,000,0000, for the California Electric Power Co., the rapid growth of Southern California and Korean outbreak caused advance in construction plans to put plant in operation January 1953.

Cotton Finishing Mill—Dan Rivers Mills, Inc., Danville, Va. awarded contract to construct cotton finishing mill at Danville, Va. to United Engineers & Constructors, Philadelphia, Pa., at about $3,500,000.

East Capitol Street Bridge—District of Columbia Highway Department, Wash., D. C. plans East Capitol Bridge. Estimated cost is $12,000,000. J. E. Greiner Co., Baltimore, Md., will complete studies for bridge and select route. H. R. Howser, district engineer.

Falcon Dam—Bids for the $45,000,000 Falcon Dam project will be opened October 20, by the International Boundary & Water Commission, El Paso, Tex., for dam and power plant across the Rio Grande River, near Roma, Tex. Richard B. Ward is engineer for owner.

Gasoline Plant—Sunray Oil Co. and Associated Operators, Tulsa, Okla. will construct isobutane and natural gasoline plant at Snyder, Tex. Contract has been awarded to The Fluor Corp. Ltd., Houston, Tex. and cost will be about $6,250,000.

Railroad—Quebec North Shore & Labrador Railway Co., Montreal, Que. has received low bid from Fred Mannix & Co., Ltd., Vancouver, B. C., Morrison-Knudsen Co., Inc., Boise, Idaho, and McNamara Construction Co., Ltd., Leaside, Ont., for 360-miles railroad from Seven Islands, Que., to Ungara ore field, Labrador, total project is estimated at $70,000,000.

Bond Issues—City of Omaha, Neb. will hold an election November 7 to vote on $5,500,000 bonds for city auditorium. L. A. Daly, Omaha, Neb. is architect. Other issues to be voted on are $1,000,000 for airport terminal and $1,000,000 for parks and recreational facilities.

Housing—Buffalo Municipal Housing Authority, Buffalo, N. Y. received low bid for constructing housing project in Buffalo from John W. Cowper Co., Buffalo, at $4,413,400.

Hospital—John Cardinal Glennon Memorial Hospital, St. Louis, Mo., plans children's hospital in St. Louis to cost about $5,000,000. Maguolo & Quick, St. Louis, are architects. Neergaard, Agnew & Craig, New York, N. Y. are hospital consultants.

Bank and Office—Republic National Bank, Dallas, Tex. will open bids October 17, for bank and office building in Dallas to cost $15,000,000. Harrison & Abramovitz, New York, N. Y. are architects.

Housing—Puerto Rico Housing Authority, San Juan, plans $6,250,000 housing projects throughout the island. Fullana Construction Co. and Font & Montilla, San Juan are engineers. Owners will soon take bids on some units.

Housing—Carl Metz, Philadelphia, Pa. will build residential development on Meetinghouse Road, Philadelphia at an estimated cost of $5,850,000. Work will be done by separate contracts.

Boys Town—Optomist Clubs of America, Richmond Chapter, Richmond, Calif. plans boys town, including housing, schools and churches, near Yountville, Calif., to cost about $5,000,000.

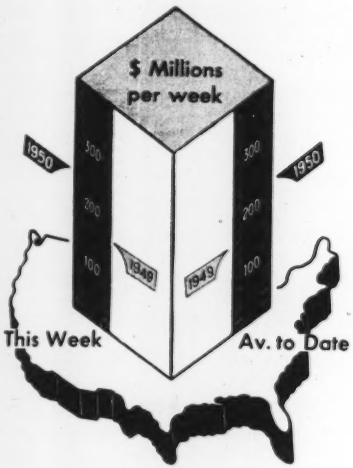
State Building—State of North Carolina, Department Archives & History, Raleigh, N. C. plans constructing state art gallery, museum of natural history and state archives building at Raleigh. Estimated cost is $3,540,264.

Court House and Jail—Manhattan Construction Co., Houston, will build court house and jail and remodel old courthouse for Harris County, Houston, Tex. at $3,968,406. A supplementary bond issue will be voted October 14 for additional funds. Finger & Rustay, Houston, are architects. Walter P. Moore and I. A. Naman, Houston are engineers.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100	1913	1926	1949
Constr. Cost. Sept. '50	530.37	254.95	111.18
Bldg. Cost. Sept. '50	392.81	212.34	111.66
Volume ....Aug. '50	385	169	135



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

Week of Sept. 28 '50	This Week	Cumulative, 39 wks. '50	'49	% chge
Federal	$10.4	$933.2	$825.6	+13
State & Mun.	104.4	2,804.8	2,436.6	+15
Total Public	$114.8	$3,738.0	$3,262.2	+15
Total Private	130.0	5,226.4	2,888.9	+81
U. S. Total	**$244.8**	**$8,964.4**	**$6,151.1**	**+46**

Contracts by type of work

	This Week	Cumulative, 39 wks. '50	'49	% chge
Waterworks	$1.9	$173.6	$160.6	+8
Sewerage ..	6.9	205.3	198.4	+3
Bridges	7.5	286.3	256.3	+12
Highways ..	26.5	977.6	723.5	+35
Earthwork, Waterways	5.8	326.8	430.4	−24
Buildings:				
Public	36.3	1,243.8	938.4	+33
Housg., pub.	17.4	228.6	309.3	−26
Housg., priv.	36.2	2,646.6	1,320.6	+100
Commercial	33.0	748.9	446.6	+68
Industrial .	54.2	1,131.1	792.0	+43
Unclassified	19.1	995.8	574.9	+73

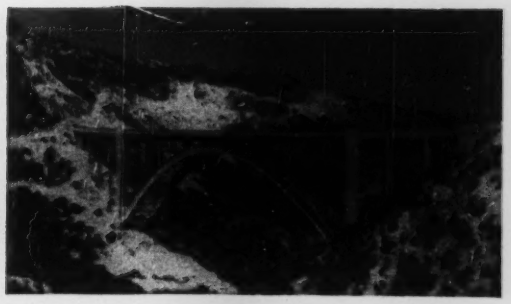
NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction ‡

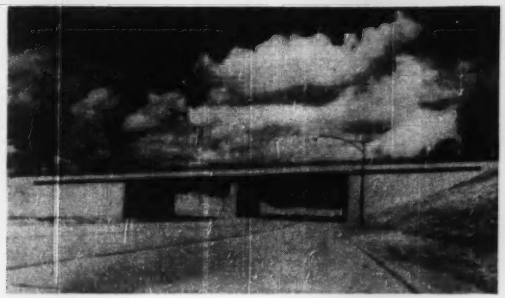
	1950	Cumulative, 39 wks. '49	% chge
Non-Fed. & Fed. Aid Corporate Securities	$522.0*	$432.51	+21
	1,489.3	1,812.7	−18
State and Mun.:			
Excl. Housing..	1,649.9	1,549.3	+6
Housing	333.6	612.2	−13
FEDERAL	2,963.4*	1,711.7	+73
Total Capital	**$7,157.2**	**$6,118.4**	**+17**

* Includes supplemental appropriations. Mandatory cutback must come out when determined. ‡ Includes appropriations not passed until Oct., 1949.

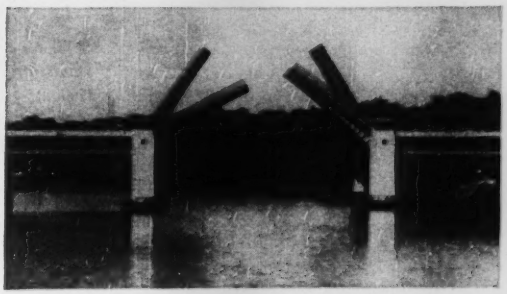
CLASS I—North Main St. High Level Bridge, Akron, Ohio.



CLASS II—Pinto Creek Bridge, 11 mi east of Superior, Ariz.



CLASS III—Tenth St. Bridge, on parkway in Atlanta, Ga.



CLASS IV—Passaic River Bridge, at Clifton, New Jersey.

A. I. S. C.'s "Most beautiful bridge" awards for 1949

Four bridges in as may parts of the country have been named "most beautiful" of those opened to traffic in 1949. Selections were made by an American Institute of Steel Construction jury of architects and engineers that included Prof. Robert L. Lewis, New York University College of Engineering, Walter E. Jessup, editor of CIVIL ENGINEERING, Kenneth Franzheim, Houston, Tex., Eero Saarinen, Bloomfield Hills, Mich., and Lt. Col. Max Abramovitz, New York, N. Y.

Five honorable mentions also were given in a field that included 46 entries. The competition has been conducted by the institute since 1928.

The winners:

Class I, for bridges with spans of 400 feet or more: North Main Street High Level Bridge, Akron, Ohio, connecting Akron to Cuyahoga Falls. Owner, County Commissioners, Summit County, Ohio; designer, Wilbur Watson Assoc.; fabricator, Bethlehem.

Class II, for bridges with spans under 400 feet, costing over $500,000: Pinto Creek Bridge, eleven miles east of Superior, Arizona. Owner, Arizona State Highway Department; designer, Bridge Division, Arizona Hy. Dept.; fabricator, Allison Steel Mfg. Co.

Class III, for bridges with spans under 400 feet, costing less than $500,000: Tenth Street Bridge, on expressway at Atlanta, Georgia. Owner, Georgia State Highway Department; designer, Robert and Company Associates; fabricator, Virginia Bridge Co.

Class IV, for movable bridges: Passaic River Bridge, crossing the Passaic River between Clifton and Rutherford, N. J. Owner, New Jersey State Highway Department; designer, New Jersey State Highway Department; consulting engineers, Parsons, Brinckerhoff, Hall & Macdonald; fabricator, Mt. Vernon Bridge Co.

Honorable mention was given to the following bridges:

Class I, Honorable Mention: Chesapeake City Highway Bridge, over the Chesapeake & Delaware Canal in Chesapeake City, Maryland. Owner, United States Government; designer, Parsons, Brinckerhoff, Hall & Macdonald; fabricator, American Bridge.

Class III, First Honorable Mention: Watauga River Bridge at Wagner Island, crossing the Watauga River on country road, Johnson County, Tenn. Owner, Johnson County; designer, Tennessee Valley Authority; fabricator, Nashville Bridge Co.

Class III, Second Honorable Mention: East Henrietta-Rochester Bridge, on state highway 494 in Monroe County, N. Y. Owner, New York State; designer, New York State Department of Public Works; fabricator, American Bridge Co.

Class IV, Honorable Mention: Bataan-Corregidor Memorial Bridge, located on N. State St. at Chicago River, Chicago, Ill. Owner, City of Chicago; designer, Division of Bridges and Viaducts, Bureau of Engineering, Department of Public Works—S. J. Michuda, City Bridge Engineer; fabricator, American Bridge Co.

Class IV, Honorable Mention: South Capitol Street Bridge, over the Anacostia River, Washington, D. C. Owner, Government of the District of Columbia; designer, Modjeski & Masters; fabricator, American Bridge Co.

Seasonal incentive?

When Rice Institute, Houston, plays its opening football game Sept. 30, 550 construction workers and their guests will be sitting in the stands, courtesy of a grateful management. These men have been working night and day for nine months to build the 70,000-seat stadium. They've just finished the job. (See p. 42.)

Expressway bonds offered for Jacksonville work

Bonds to supply $28,000,000 toward a $41,818,000 expressway at Jacksonville, Fla. have been offered to bidders.

Money to meet the financing costs of the bond issue will accrue from an interlocking arrangement worked out among the improvement commission, state road department, and the Duval County Commission.

The road department expects to meet bond payments with the proceeds of the tolls from two St. John's river bridges that are part of the expressway, plus the proceeds of the Duval County gasoline tax credits.

Besides the two bridges across St. John's, the program plans another bridge across the Trout River, and some 42 mi of connecting highways within the city of Jacksonville.

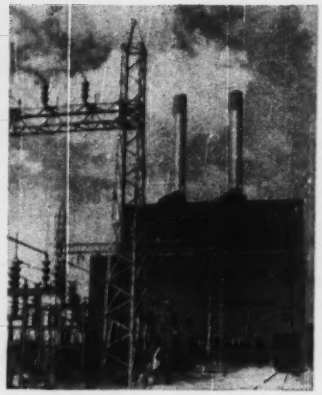
The state has reserved its right to turn down all bids on the Jacksonville bond issue if it feels that acceptance of any one of them would prove uneconomic.

Strategic importance of the project has been stressed by Vice Admiral J. H. Cassady, deputy chief of staff of naval operations for air. Detailing how improvements at Jacksonville's naval base at Mayport (where the St. John's goes into the ocean) will give the Navy facilities capable of berthing the largest aircraft carriers now afloat, Admiral Cassady has written Governor Fuller Warren that the project is of "great interest to the Navy," because the new bridges and highways would allow naval personnel to reach outlying Mayport without having to travel through congested, downtown Jacksonville.

Boston opens its first parking garage

The first city-owned off-street parking garage at Boston, Mass.—at Lincoln and Essex Streets near the South Station—began operation Sept. 1. With a capacity of 365 cars and leased by the Eliot Carver Co. at an annual rate of $52,000, the garage is three stories high and includes 9 levels. It cost about $400,000, exclusive of land. Mayor Hynes was the No. 1 customer, marking the first tangible financial return in the city's program. The official name of the project is "City of Boston Public Parking Facility."

Tentative plans have been made by the Boston Real Estate Commission for ten such sites in addition to the projected Boston Common underground garage, which is to accommodate about 3,500 cars. The next garage to be built on the program will be at Winthrop Square. Basic plans for this are complete, according to Herman Carp, chairman of the Real Estate Commission. Under the first $5 million authorized by the Legislature for the city's off-street parking program, a third site has also been purchased at Franklin and Pearl Streets. Permission to borrow a second $5 million was denied by the recently prologued legislature, but Mayor Hynes hopes to obtain this from the 1951 session.



MORE POWER—Niagara Mohawk Power Corp.'s Dunkirk, N. Y. plant will go into operation this fall. Initial capacity will be 160,000 kw, steam-generated output, with provision for capacity of 320,000 kw.

Truckers lose weight case; plead unlawful search

Two Indiana truck drivers have been convicted of operating overweight trucks after losing a plea that the state truck weight law was unconstitutional. They had argued that state police, by conducting truck-weighing tests, were making unlawful search of property without a proper warrant. Their counsel moved to suppress the evidence of overweight, on the grounds that the police had conducted a search before making an arrest.

The court held that investigation of truck weight does not constitute unlawful search. The state police had "visual evidence or reasonable cause to believe that there was a violation of the Indiana truck weight law . . . (they could) stop the truck and determine whether or not it (was) overweight."

One driver was fined $660 for an overload of 6600 pounds; the other was fined $80 for an overload of 2000 pounds.

Chicago asks closing of 8 movable bridges

The Army Corps of Engineers has under advisement the city's petition to abandon the operation of eight movable bridges on the north branch of the Chicago River. Col. J. P. Campbell, Army district engineer, held a hearing on the application in the city council chambers. The city plans eventually to substitute fixed bridges.

None of the eight bridges was opened justifably more than 26 times in any year since World War II, according to Stephen J. Michuda, city bridge engineer. Closing the spans would save the city $160,000 a year in operation and maintenance costs, he said.

Opponents of the proposal contended that keeping the bridges movable is essential to defense and that losses to industries and property owners in the areas would exceed the city's savings.

Pittsburgh trucker hits Pa. truck-weight laws

The W. J. Dillner Transfer Company of Pittsburgh is protesting Pennsylvania's truck weight laws, complaining to the Dauphin County Court in Harrisburg that its drivers are being "harrassed" by the "illegal" and "unwarranted" weight of enforcement activities.

The Pittsburgh company complains that the state refused to issue overweight permits for cargoes to be transported under "safe" conditions unless the load is a one-piece item. This regulation, the truckers claim, is contributing to increased costs of operations. The permits, they say, also should be issued for general cargoes.

State police arrests for violations of weight laws have reached an all-time high, averaging around 2,500 a month. In Pennsylvania the driver, not the trucker, is fined $50 for each violation of the weight law.

Jersey Turnpike paving

Alternate bids on both bituminous concrete and portland cement concrete are being invited by the New Jersey Turnpike Authority, in order to get paving started on the turnpike (ENR Sept. 14, p. 36). Work will include paving in a stretch of 24½ miles in Mercer and Middlesex counties. Total turnpike length is 118 miles.

The outcome of these bids is likely to determine the type of pavement that will be built on the rest of the turnpike. Bid-opening date is Oct. 11, 1950.

Paper-mill pollution reprieved in Washington

Because of the difficulty in obtaining steel for the required construction, four Washington state pulp mills have been granted indefinite extension of time on their programs to recover waste liquor now dumped into waterways with harmful effects to fish life. They originally had been ordered to begin installation of such recovery facilities by late next year, but they now are permitted to carry out temporary plans.

The Washington State Pollution Control Commission has approved plans of the Weyerhaeuser and Soundview mills at Everett to construct a 3,200-ft pipeline carrying the liquor into salt water at a depth of 330 ft. The liquor first will be pumped into a large tank, then go into an outlet running 800 ft to low water, from which point it will be pumped 2,400 ft into deep water. Some 500 outlets two feet apart will diffuse the liquor, according to E. F. Eldridge, director of the commission.

The commission feels this plan will give a certain amount of relief, possibly higher than 25 percent, from existing pollution. The mills promise to go ahead with a permanent recovery plan as fast as possible.

The Crown-Zellerbach mill at Camas is completing a plan to diffuse its liquor well out into the main channel of the Columbia River while Rayonier has increased its pond area at Hoquiam 50 percent and is making a change in its mill site to pick up the last of the escaping liquor.

Boulevards as flood protection proposed

Fifteen miles of raised boulevards on either side of the Red River have been proposed to the six municipalities in Greater Winnipeg as protection against future Red River floods. The municipalities have agreed that the basic principle of the proposed dikes is sound.

The dikes would be built on existing 65-ft street rights of way, and would be 50 ft wide the top. Construction cost is suggested to be at least $2,500,000. Top level of the dikes would be 26.5 ft above Winnipeg datum, or 3.8 feet below the maximum flood water level of last spring. It is the intention that sand-bag levees could easily be built along the boulevards on the tops of the proposed dikes if the river level approached 1950 peaks. In the meantime, possible plans for full control of the Red River now are under consideration by the International Joint Commission.

DRINK UP, FOLKS, NO MORE DRY DAYS

New York City's water conservation effort was proclaimed at an end when Sept. 1 storage hit a 15-year high. New Yorkers have been congratulated for saving 75 billion gallons during the nine months—as much as 300 mgd. Reservoirs are said to have 60% more water in them today than they would have had without the effort to conserve. August's consumption was 982 mgd; August, 1949, it was 1,258 mgd.

Pennsylvania cities must build sewage plants

The Sanitary Water Board of Pennsylvania has re-affirmed its order to Harrisburg and Wilkes-Barre requiring them to construct sewage treatment works by June 1, 1952. All sewered communities along the Susquehanna River have received similar orders (ENR, Sept. 7, page 29).

The mayors of Harrisburg and Wilkes-Barre had requested that the board grant extensions of time for the execution of the orders, claiming that there is a shortage of materials and equipment, that costs are high and that bonds for financing the projects are not readily sold.

In reply the board said that it "appreciates your careful examination of conditions which might affect your construction program but the board also has considered the availability of materials and equipment, price levels, and interest rates in the light of present facts. After reviewing these and the board's stream cleanup program as affecting others as well as your city, and in fairness to those municipalities and industries which have proceeded to carry out the orders, the board reaffirmed its orders concerning the construction of sewage treatment works."

Federal loans for plans aid Ohio-Valley towns

Sewage-disposal facilities for 105 Ohio-Valley communities now are in the planning stage as a result of government interest-free loans totaling almost $2,000,000, according to the Ohio Valley Water Sanitation Commission, which represents eight states engaged in a joint campaign for water pollution control.

The loans, which were approved by the U. S. Housing and Home Finance Agency, are being employed to prepare plans for 47 sewer and treatment-plant projects in the eight states. Cost of the completed projects is Estimated at $102,000,000. They will serve the needs of 16% of the valley residents.

The largest single advance was $500,000 to the Allegheny county (Pittsburgh, Pa.) Sanitary Authority, which is designing an intercepting sewer system and a huge treatment plant. Estimated project cost is $59,000,000. Youngstown, Ohio, was to receive the second largest—$265,000—for an estimated $9,000,000 construction program.

• **Youngstown loses loan**—However, local disagreement has caused the cancellation of Youngstown's $265,000 planning loan. The city council could not agree on the method of financing the big construction program.

As a result, the city council did not approve the planning-loan request, an omission that led to withdrawal of federal advances. The withdrawal is being made without prejudice, so the project can be reinstated later.

Sanitation plant opens after 12-day walkout

The sewage and garbage-disposal plant of Indianapolis reopened recently after a 12-day walkout during which 100 mgd of raw sewage greyed the waters of Indiana's White River with contamination.

The walkout began with union demands for a wage increase of 15 cents an hour instead of a five-cent increase originally scheduled for 1951. A supplemental demand charged the plant superintendent and collection supervisor with "inefficiency and dictator-like methods."

City Hall refused to recognize and negotiate with union representatives. The city took the position that under state law it could negotiate only with a committee of workmen representing its employees.

The result of this impasse was the contamination of the White River.

The city had to take active steps. On the 12th day of the walkout a new crew for the sanitation plant was hired, and collections were brought up to normal.

While the union charged the city with hiring "scabs," City Hall announced the return of more than 40 of its sanitation-plant employees.

Sewage disposal was back to normal last week in Indianapolis, but the union recognition issue still was alive and picket lines still existed at the plant. Railway crewmen, without the authorization of their brotherhood, have refused to cross picket lines to bring the coal and lime to the plant. With this the only supply problem Mayor Al Feeney confidently awaits the outcome. He has a 60-day supply of coal.

BITUMINOUS MATERIAL CONTAINING RUBBER was laid with normal paving equipment on the first large installation of that material in Massachusetts. It could be made ready for traffic more quickly than the same mix without rubber.

Rubber Treated Pavement to Receive Large Scale Test in Massachusetts

MASSACHUSETTS this month, completed laying the longest bituminous pavement containing rubber to be put down in this country—over five miles of four-lane resurfacing on U. S. Route 1 from North Attleboro to the Rhode Island state line.

Convinced that the addition of small quantities of rubber to standard bituminous mixes improves their quality and probably will add materially to their life, the state's Department of Public Works has greatly expanded its program for testing such mixes. In addition to the work below North Attleboro, rubber in various forms is to be used in bituminous pavements to be laid under 13 additional contracts that have been let or soon will be. In all, about 20 miles of surfacing containing rubber are to be laid this year.

This decision in favor of a greatly expanded program is chiefly the outcome of favorable evidence produced by a small test section of pavement laid by the state last year along with other states (ENR July 7, 1949, p 52) under the sponsorship of the principal producers of rubber.

The test section laid by Massachusetts in 1949 was on both lanes of U. S. Route 1A at the Wrentham-Plainville town line over an old concrete pavement. A half mile of bituminous surfacing containing rubber was laid north of the town line and a half mile of the same material without rubber (Massachusetts Type I bituminous concrete) was laid as a control section south of the town line. Both sections have a 1¼-in. binder and leveling course topped by a 1¼-in. surfacing course.

This test section differed from most of the test installations made elsewhere in the country in two respects; a "meltable rubber compound" was added to the hot bituminous oil used in preparing the mix, instead of powdered or pulverized rubber being added to the dry aggregates; and the rubber compound was added to both binder and surfacing course. The latter was done to avoid any injurious effect resulting from a difference in the coefficient of expansion between binder and surfacing, 10% of the weight of the bituminous oil being added to the binder and 15% to the surface course.

• **Less winter damage**—Examination of the test and control sections this spring showed that the surfacing containing rubber had suffered less during the winter months than the adjoining untreated section. Cracks of considerable width had opened in the latter over many of the contraction joints, which are about 50 ft apart in the underlying concrete. Some were in one lane, some across both.

In the pavement containing rubber, on the other hand, very few cracks developed over the joints and they were so narrow as to be hardly noticeable. Generally they did not extend over the entire width of one lane.

Also, there appeared to be considerably less raveling along the outer

edges of the surfacing containing rubber.

• **Much larger area paved**—The resurfacing job that was completed Sept. 1 on U. S. 1 from North Attleboro down to the Rhode Island line is 5.2 miles long and generally 46 ft wide between curbs. It was done as a normal contract operation under which the contractor, the Old Colony Construction Company of Quincy, Quincy, Mass., bought rubber to meet specifications of the Department of Public Works just like any other paving material. These specifications did not state whether natural, synthetic or reclaimed rubber was to be used, being written in general terms, as follows:

"The rubber compound for admixture with the asphalt shall meet the following requirements: (A) The rubber compound shall be a mixture of rubber, natural and synthetic resins which will blend with bituminous materials to form a homogeneous product; (B) The rubber compound shall be capable of being brought to a uniform liquid consistency when heated to a temperature between 325 deg F and 450 deg F. The melted compound when blended with hot asphalt by means of circulating pumps or other suitable method shall form a homogeneous product which will not separate on cooling."

The asphalt cement was required to conform to AASHO specification M20-40 for 100-120 penetration asphalt. It was to "be thoroughly blended with ½ of 1% of Darakote or equal."

Requirements for the amount of rubber were the same as those used in the test section laid last year. "Asphalt used on the top course shall contain 15% by weight rubber compound. Asphalt used in the binder course shall contain no less than 10% by weight rubber compound." Thicknesses specified for the surfacing and binder also were the same, 1¼ in. in each case, a total of 2½ in.

WITHOUT RUBBER wide cracks opened during the winter in the surfacing over contraction joints in the underlying concrete pavement.

Each ton of binder prepared to meet these specifications contained about 100 lb of asphalt oil and rubber compound, and the surfacing contained 120 lb.

• **Type of rubber used**—The rubber used on this project is a compound developed by the Naugatuck Chemical Division of the U. S. Rubber Co. to meet the Massachusetts specifications. It has been given the trade name "Surfa-Sealz." The local distributor, C. C. Plumb, delivers the compound, heated to 300-325 deg, in tank truck to the contractor's mixing plant at Quincy where it is pumped into the tanks of other trucks delivering hot asphaltic oil to the plant while they are on the weighing scales. This permits inspectors to check on the amount of rubber going into a particular mix, either 10 or 15% of the weight of the oil, depending on whether binder or surfacing is being produced.

The compound contains from 60 to 65% rubber, the remainder being the resins with which it is blended.

• **No construction difficulties**—Laying the pavement began on July 24 and was completed Sept. 1. Using two pavers, the normal rate was 1,000 tons of binder per day and 850 tons of surfacing. Because of the long haul from the contractor's asphalt plant—about 35 miles—some time was lost waiting for trucks. Also, traffic had to be maintained on part of the highway at all times.

As far as the men doing the actual paving are concerned, the mix containing rubber is definitely superior to the normal Type I mix without rubber. Interviewed as the job was drawing to a close, John H. Freeman, resident engineer, said that the mix is more homogenous than the normal mix, that there never is any evidence of free oil coming to the surface. Fines are better integrated; they cannot be worked out of the mix by strenuous brooming, as is the case with normal Type I mix. Initial compaction is almost perfect, and traffic can be permitted on the new surface much earlier. Where traffic has to run over the binder course, there is less raveling of the ¾-in. stone.

At times there is some "tearing" behind the spreader (which was reported on some other jobs using rubber) but no more than with the normal mix, and it appears to be due more to the temperature of the mix as it reaches the screed of the paver than to its composition. The rubber mix may have more tendency to form a crust while enroute to the paver, but that may have been due to the unusually lond haul, Mr. Freeman said.

Even more enthusiasm was expressed by Louis Sangiorgio, contractor's foreman, and Walter Crane, roller operator. Louis Sangiorgio says the new mix lays better than the standard type and is more foolproof. Less rolling appears to be required.

This work was done under the general direction of Wm. F. Callahan, commissioner, Massachusetts Department of Public Works, Edgar F. Copell and William C. Tuttle, executive assistants to the commissioner, and Philip H. Kitfield is chief engineer. John H. Freeman was resident engineer on the job with Archie L. Walden as assistant. Samuel P. Tauber represented the U. S. Rubber Co. on the work.

(A review of the test installations of pavement containing rubber made by other states and by a few cities is to be published in an early issue.)

INITIAL COMPACTION of the bituminous mix containing rubber appears to be higher as it leaves the paver, and rolling can be started immediately.

WALLACE E. HOWELL ". . . we are trying a very simple storm typing, by which we'll group storms for comparisons between our areas, seeded and unseeded."

Rainmakers need a better yardstick

On August 17, New York City's Board of Estimate voted to extend for another six months the experiment in rainmaking begun last February by consultant meteorologist Wallace E. Howell. There was no question about the extension. Water Commissioner Stephen J. Carney simply told the board that Dr. Howell's experiments would need to cover the four seasons if it was to be determined whether or not they caused the rainfall bonus the city's watersheds have received so far this year. Dr. Howell, reticent about the results of his experiments for many months, admitted recently that they had probably caused a little rain that would not have fallen anyway. Waterworks men, many of whom are skeptical about rainmaking in general, await proof. To find out how he's doing so far and what his problems are, ENR interviewed Dr. Howell and recorded the interview. Here it is:

Let's start off with a tough one and ask what success you believe you have had so far?

I don't know. We've not made the critical test yet with the rainfall data. This will be a comparison between rainfall on our watershed area and on two control areas, one near Binghamton, N. Y., and the other in the Pocono Mountains of Pennsylvania.

But even when we make the comparison it is quite possible that it will not show a sufficient statistical result—the result may still be in doubt.

What would you say is the greatest problem to be faced in making rain?

The wobbly yardstick by which we must measure our results.

Wobbly yardstick? Would you explain what you mean by that?

Well, the fundamental problem, of course, is to compare what happens when cloud seeding is being done with what happens when it is not done.

We don't have controlled conditions which we can reproduce in a given experiment—so that we cannot run it once with silver iodide and once without silver iodide and have identical conditions to work with. The atmosphere is too large and too complex to be subject to such control.

Lacking controls, then, you must work with assumptions?

That's right. We must work with the occurrence as it goes on in nature. We can observe with a certain small degree of exactitude what goes on. But when we come to the point of determining what would have occurred if we had not seeded, we can only compare either with other occurrences at the same place in the past, or with occurrences nearby at the same time.

Suppose we try to work with past conditions at the same place? We might find, for instance, that June's rainfall this year showed as the fifth heaviest June of the past 15 years—greater than 10 of the years and less than four. From that we can't come to any conclusion. It is just not statistically significant.

Couldn't the precision of comparison with past years somehow be raised?

Only by operating for a tremendously long period of time, and actually then it would be further cast in doubt by the fact that the weather seems to unrelate itself in time with its own past performance. Correlations that carry significant value for a long time tend to break down. Nobody knows why, but the weather is changed. So, direct comparison with the past record is not sufficient—nowhere near precise enough.

As another method we might make random experiments during the present time. That is, when a situation is found that is judged possible for cloud seeding we could throw dice! If chance says operate today, we operate, and if the chance says don't operate today, that day goes into the comparison group. That's a method of randomizing, but there again it would take a tremendously long period of operation to get sufficient evidence.

The other comparison we can make is with the performance of weather nearby, outside the seeded area, at the same time as the seeding is going on. Even there, when we compare the daily rainfall of two stations, say eight miles apart, we find that there is about 20-percent variability between them. But that's still far better than a comparison with the same month last year, because for the same month last year there is likely to be a 40-percent difference. And that's a whole month. So, in a single day of comparison between nearby areas we have a better yardstick for measurement than in a whole month of comparison with the past year.

You apparently have chosen your yardstick then. What now?

The next step is its perfection. As we get the two stations farther apart, the relationship can get worse and worse. In an attempt to improve it we are stratifying the data, grouping it into physically similar groups, comparing a given storm with storms as nearly similar to it as we can judge, based on two relatively simple criteria: wind direction and pattern of air flow aloft.

Actually, we are trying a very simple storm typing, by which we'll group storms for comparisons between our areas, seeded and unseeded.

Are your test regions geographically and meteorologically similar to the water-shed area?

They are subject to the same climatic controls, and are about the same distance from the ocean, but are not as mountainous. Tests of the relationship between precipitation of neighboring stations in the mid-west have shown two stations on an east-west line will have a better correlation than two stations on a north-south line.

So, we selected one area due west of the Catskills—the other, southwest.

How about the methods—what methods of seeding have you tried?

We have tried seeding with dry ice from an airplane, and seeding with silver iodide smoke from the ground.

And which is more successful?

We don't know yet. It is difficult to answer that without first answering other questions.

As we understand it, you are able to direct the activities by long-distance phone. What's the weather information you need to direct a seeding?

Why, foremost, whether there will be supercooled clouds; that is judged from the overall weather situation. And second, the thermodynamic stability of the air and the direction of the wind, both of which have a direct bearing on where the bulk cloud of silver iodide will go and the path that will be taken by any storm that is produced there.

How frequently have seedings been conducted?

The average rate has been about seven times per month. We could probably raise that if we had better airborne equipment.

Could you tell us briefly what happens in a typical operation, what preparation is necessary, what information you get, what the follow-through is?

In a typical operation the weather people that I have keeping an eye on things will call me up when they foresee, say 24 or 36 hours in advance, that there is weather coming that may give rainfall. At that time I consult with them, get the latest observations from airlines throughout the nation, and make my own estimates of where and when conditions suitable for seeding will arise.

A proposed operation is then set up, and anybody who is going to be involved in the operation—the generator crew, weather bureau, sometimes an experimental radar station which is cooperating with us, and anybody else that is going to be in the picture, is alerted. Next I get a final forecast from the weather bureau of winds aloft, stability conditions aloft, cloud levels, etc., a few hours before the operation begins.

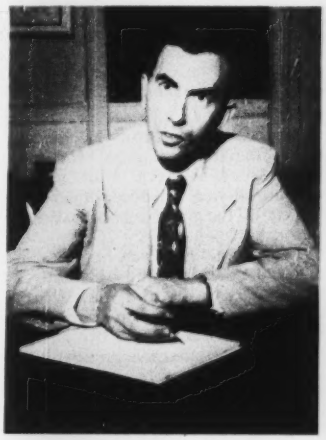
On the basis of this last information I compute approximately—I say approximately because there are so many conditions which influence it—the path that the smoke will take, and select the location of the generators on the basis of that forecast. If the wind as forecast shifts during the period, I'll make plans for the generators to be moved, try to locate two of them so that minor wind fluctuations will carry the smoke from one or the other toward the central part of the region, then follow through by keeping in touch with the weather bureau and by telephone and radio in touch with the generators, so that they will change the plan if the weather changes unexpectedly. Seeding is usually begun 4 to 6 hours before actual rainfall is expected, and continues until either the stability is such that we wouldn't have the smoke carried up any longer, or until the rainfall situation is passed.

How does the dry ice seeding flight differ, if at all?

Well on all the dry ice seeding flights so far I have gone along myself. That's the main difference.

What have been your chief physical handicaps—equipment shortages?

The chief handicap has been the difficulty in getting radar, and that has been involved with difficulty of getting a field station. I still don't



". . . the result may still be in doubt."

have one after these many months. The second principal difficulty is that the police aircraft is not adequate. They can't fly on instruments, and they aren't equipped with oxygen.

How about the space limitation? Does that 1,000 sq mi watershed cramp your style?

No. I don't think it does. Admittedly it's a small target. But if you can't make rain in the given space, then the method isn't practical.

How about any other impediments?

A fairly large impediment is that the temporary character of the project has made it very difficult to get experienced personnel. I have been unable to get a first-class, highly qualified meteorologist to work with me.

How about farther down in your organization; does the operating personnel have to be highly trained?

No, they don't—as long as we have a few key personnel.

Do legal limitations bother you?

No, not at all. So far, no legal order has been brought to bear on the project in any way. The legal question has simply not been brought to a decision. As a matter of fact no opinion is worth the paper it is written on until it is supported by a court decision. This is strictly legal pioneering.

Do you consider rain making a legitimate water-supply function?

Certainly. If it can be shown to be effective in increasing the water supply it is highly legitimate.

But you don't think that has been proven yet?

Not in this case. And in other cases, I frankly have not personally checked the data to form an opinion.

Would you consider leaving your research for some commercial exploitation of the art of rain making?

I have no particular inclination in that direction.

Have you had any offers?

No. I've had, oh, various things that may lead to other consulting.

Do you think that before any commercial set-up could be established on the East Coast, such as those already going on the West Coast, there would have to be a law to establish responsibility?

It would have to be established in one fashion or another, and the only fashion I could see as suitable would be through federal regulation. That I think would be a long way ahead.

Federal regulation, and how about federal participation? Who is to make the rain? Would it still be a private enterprise?

Well, federal regulation probably implies federal participation in things like this, because the regulatory mechanism would be greater than the operation, almost.

What about costs?

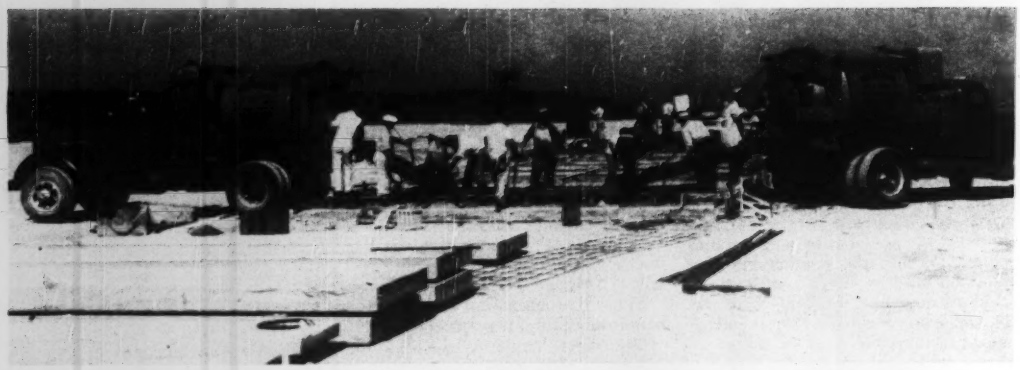
You mean, how are we doing on the $50,000 allotted for the first six months? Well, we have spent about $20,000 of it, so far. But, as I say, we have been under many handicaps and have been going only half-speed. If we had been able to operate without handicaps we would have just about come out even. Once the evaluation has been made, once you have the basis upon which to decide whether this is or is not a practicable method—from there on, the expense would be much lower.

Do you have an idea what it would be—have you a suggestion as to what it would cost to seed the watershed each year?

About $25,000—after the capital expenditures.

Well, it really is, then, a comparatively inexpensive experiment, isn't it?

Comparatively speaking, yes. In terms of the New York's annual budget, it's been aptly described as subway fare.



APRON-WALL AND GRADE-BEAM SLABS for an industrial plant built near Pittsburgh were precast in road forms.

Precasting Speeds Factory Construction

To SPEED construction and lower costs, Wigton-Abbott Corp., engineers and builders of Plainfield, N. J., precast the concrete grade beams and apron walls for Continental Can Company's new plant near Pittsburgh.

The grade beams are fitted between piers (20 ft on centers) their ends supported on the footings. The apron walls rest on steel bearing plates on top of the beams and are clipped to the structural steel columns.

Wall slabs are mostly 4 ft high, 20 ft long and 7 in. thick. Grade beams generally are 3 to 5 ft high, 18 ft 6 in. long and 8 in. thick.

The walls above the precast portion are made of aluminum siding. Windows have steel sash.

The building is a one-story combination factory and warehouse, 720 x 900 ft. It is served by nine railroad sidings with an indoor loading platform to accommodate 49 freight cars simultaneously, a covered truck shed with facilities for unloading 34 large trailer trucks; bins for scrap tin storage and a 45x100-ft boiler house. A two-story section in the rear contains administrative offices.

• **How it was done**—Wigton-Abbott first placed a casting slab 25x135 ft by 7 in. thick on a level area, with sufficient storage space surrounding it. The slab was divided into five 27-ft sections by ½-in. expansion joints, and the surface was hand troweled.

As a basic form for the walls and beams, the contractor resorted to a steel road form, which was furnished in 10-ft lengths. He varied wall height and shape by using intermediate wood forms and attaching wood shapes.

Steel pins to align and hold the road forms were set in the green concrete of the first two sections of the casting slab. Because of the difficulty of keeping the pins plumb and properly aligned, however, this method was abandoned. Instead, holes were drilled in the other sections and the pins grouted in.

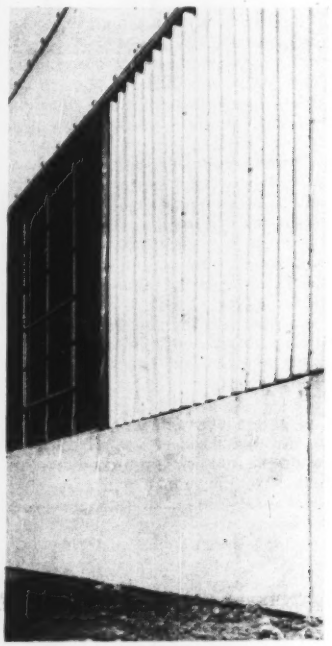
Road forms first were set for both edges of dock wall units, enabling 20 units to be made at a time. Later, when it was necessary to cast units of different vertical heights, two adjacent edge forms from each group of two units were replaced by wooden forms, the wall heights being varied by using different lengths of spreaders.

• **Forms give some trouble**—The contractor found that the road forms are satisfactory if in good condition, but advises others who wish to adopt this technique to use new forms. The face of the form must at all times be perpendicular to the casting slab and must not be dented or bent. Any irregularities are reproduced in the concrete and can make stripping and setting almost impossible.

The use of ¾-in. dia. pins with the steel forms also is recommended, rather than the ⅝-in. pins normally furnished. Since the forms have a 1-in. hole to receive the pins, the ¾-in. pins leave ¼-in. clearance when the locking wedge is knocked out; hence the forms can be moved back to clear minor irregularities.

Pouring of concrete was greatly facilitated by casting the 20-ft long units across the 25-ft. dimension. With a roadway on each side of the casting slab, two trucks chuted concrete directly into each slab from opposite edges, permitting placing with a minimum of shoveling.

• **Preventing bond a problem**—The contractor tried several materials to prevent the wall sections from bonding to the casting slab. Building paper and heavy wrapping paper separated the two satisfactorily but wrinkled badly and stuck to the wall sections. Such papers could not be used where the interior face of the units were exposed in the building. Similarly, canvas treated with shellac and oil (it did



WALL of concrete and aluminum.

not adhere to the wall unit and had the added advantage of imparting an interesting texture to the surface of the unit) also had a tendency to crawl and wrinkle.

Aluminum foil kept the units from sticking, but it also wrinkled and bonded to the wall unit. The contractor also tried aluminum paint, stainless steel and heavy battleship linoleum. He discarded these for various reasons, the stainless steel principally because it was not available in desired lengths and widths, though it was otherwise satisfactory.

He finally decided to use 14-ga black iron strip in 20-ft lengths and 5-ft widths. The strip was treated with a mixture of diesel oil and colorless machine oil before and after each use. The result—identical to that obtained with stainless steel—was satisfactory. The iron strip prevented bond and imparted a smooth, glossy texture to the concrete.

• Crane lifted units—At first, the units were freed from the casting slab by jacking upward against an eyebolt screwed into steel lifting inserts cast in each unit for the purpose. The contractor later discovered that the units could be safely lifted directly from the casting slab with the crane after the concrete had developed a strength of 2,000 psi.

The original eyebolts were 1-in. dia. each with a steel plate welded on the threaded portion to act as a guide to insure that the bolt would be screwed all the way into the nut. This arrangement proved unsatisfactory for two reasons: (1) When the slabs were lifted, the initial and greatest load was from the side, bending the bolts so that they could not be used again. (2) The welding crystallized the bolts. Sometimes the bolts broke at the weld on the first pull. As a result the contractor changed to standard eyebolts with a heavy shoulder beneath the eye and only 1¼ in. of stock. These worked satisfactorily.

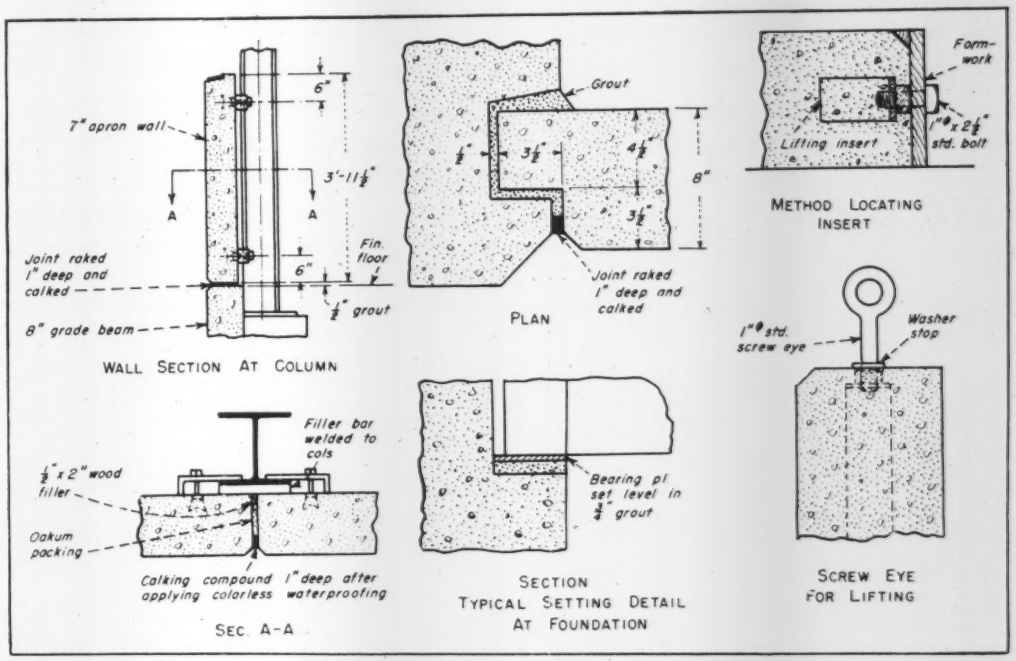
Lifting of the hardened units was done by a 20-ton pneumatic-tired crane with a cable sling and a 6 x 4 x ⅝-in. angle spreader. The spreader had holes in both legs to correspond to the spacing of the lifting inserts. A 1-in. eyebolt was screwed into each lifting insert, and each eyebolt was attached to the spreader by two U-bolts. One ironworker foreman, four ironworkers, a crane operator and an oiler were used to lift and store the wall sections.

The method that the contractor found best for positioning the lifting inserts was one in which he spot-welded a roofing nail to the iron-strip separating medium at the location of each insert. He then drove a wooden peg on the nail and set the insert over the peg. When the slabs were lifted, the pegs generally pulled free. The roofing nails were removed when the steel was cleaned and were welded back again to receive the inserts of the next type of slab to be poured.

The units were moved on a 10-wheel, 20-ton low-boy trailer and tractor. They were laid flat on the trailer with 2x4-in. dunnage between them and as many sections were moved at one time as the trailer and ground conditions would allow.

As fast as the exterior footings and piers of the building were poured, the grade beams and apron walls were set in place by a crane. The lifting inserts were used for fastening the units to the columns.

• Advantages of precasting—Wigton-Abbott engineers point out that to have matched the speed of the precasting process with cast-in-place construction, they would have had to erect large areas of costly formwork on the site, at a time when the operation would have been subject to interruption by weather. They gained speed by precasting in the winter and saved money by eliminating conventional protection and heating. The savings in formwork, they report, far outweighed the cost of handling and setting the precast units. Further, the cost of finishing precast slabs was considerably less than that of pointing up and rubbing cast-in-place wall.



PRECAST WALL SLABS are clipped to the steel columns (left). The grade beams rest on column footings.

Quick; Cheap Cast-Iron Pipe Cutting

TIME AND EXPENSE can be saved by utilizing the arc-oxygen method for cutting cast-iron pipe in place. Such savings were pointed up when Atlanta's water department inserted connections between two 60-in. existing pipes and its new intake reservoir and 30-mg mixing basin, immediately prior to placing the mixing basin in service.

Part of a $550,000 project to bring water-purification capacity to 75 mgd, the connections consisted of insertion of a tee and "L", both prefabricated steel, in the cast-iron pipes.

• **How it was done**—After shoring excavations at the points of insertion, the contractor moved in and set up equipment for cutting and handling the pipe. This was done so that the labor crew could start work at midnight Saturday when water use is lowest.

With equipment and crew at ready, water was shut off, and two 2-in. holes were drilled in the bottom of the pipe for drainage.

As a guide for cutting, a steel band ¼ by 2-in. was wrapped around the pipe. Then using an arc-oxygen torch with ⅝-in. tubular-steel, flux-coated electrodes, three cuts were made at an average cutting time of five minutes per foot. This was maintained despite the fact that considerable water leaked into the section being cut. Cut openings were generally about ½-in. in width.

It was found that the best results were obtained with 300 amp delivered from a conventional electric welding machine. This produced a smooth cut from which molten metal was blown clear.

Cost of this job and of cuts of other sizes of pipes (see table) are reported to range between one-third and one-half of the cost of mechanical and oxy-acetylene methods. In addition, the time of cutting is said to be reduced about 50 percent.

Paul Weir, general manager of the Atlanta department, said that cuts have been made on pipe from 6 to 60 inches in diameter. On one job, a 60-in., ¾-in. thick steel pipe was cut in 25 minutes. The cut was almost as smooth as is done by a wheel cutter, he said.

• **Who took part**—Kenneth Thrash was resident engineer for the water department. Standard Construction Co., Columbus, Ga., was contractor with R. C. Davis as superintendent. The cutting torch and electrodes were furnished by Craftweld Equipment Corp., Long Island City, N. Y.

WHAT IS ARC-OXYGEN CUTTING

Arc-oxygen cutting is an oxygen cutting process wherein the severing of metals is effected by means of chemical reaction of oxygen with the base metal at elevated temperatures, the necessary temperature being maintained by an arc between an electrode and the base metal. . . . "Standard Welding Terms and Their Definitions", American Welding Society, 1949.

ENTRANCE IS CUT in pipe and the job is completed from the inside.

COST BREAKDOWN FOR CUTTING CAST-IRON PIPE BY ARC-OXYGEN METHOD

Water Department, Atlanta, Ga.

(Note: These data are based on average performance by average operator)

Size of pipe (in.)	12	16	20	30	60
Approx. wall thickness (in.)	.62	.70	1.03	1.37	1.39
Approx. length of cut per electrode* (in.)	2	2	1½	1	1
Approx. cutting time* (in.)	25	30	60	110	200
Generator rental ($)	1.05	1.26	2.50	4.62	8.40
Oxygen ($)	.41	.50	.98	1.80	3.26
Electrodes ($)	2.50	3.13	5.86	13.75	25.00
Total material cost ($) (three preceding items)	3.96	4.89	9.34	20.17	36.66
Welder (straight time) ($)	.58	.70	1.40	2.56	4.65
Helper (straight time) ($)	.38	.45	.90	1.65	3.00
Total labor cost ($) (Welder & helper)	.86	1.15	2.30	4.21	7.65
Approx. total cost (material & labor) ($)	4.82	6.04	11.64	24.38	44.31

* Note: Where an appreciable amount of water is encountered add:
50% for labor
15% for electrodes

Rented generator: 300 amp. The rental is at the rate of $2.50 per hr. with a minimum of 5 hrs.
Note: In listing the cost of cutting pipe the minimum charge was not considered but the average cost per hr was used $2.50
Oxygen: Based on 3 4 tank used on cutting 30 in. pipe (110 min.)
The quantity of oxygen used is about 0.41 tank and
The cost at $2.40 per tank is about $0.98
Electrodes: 5 16 in. tubular steel electrodes, flux coated and fully insulated at 50¢ per lb
At 4 electrodes per lb. the cost each is . . . . . .125¢ ea
Labor: Welder's time (straight) 1.395
Helpers time (straight) 0.89

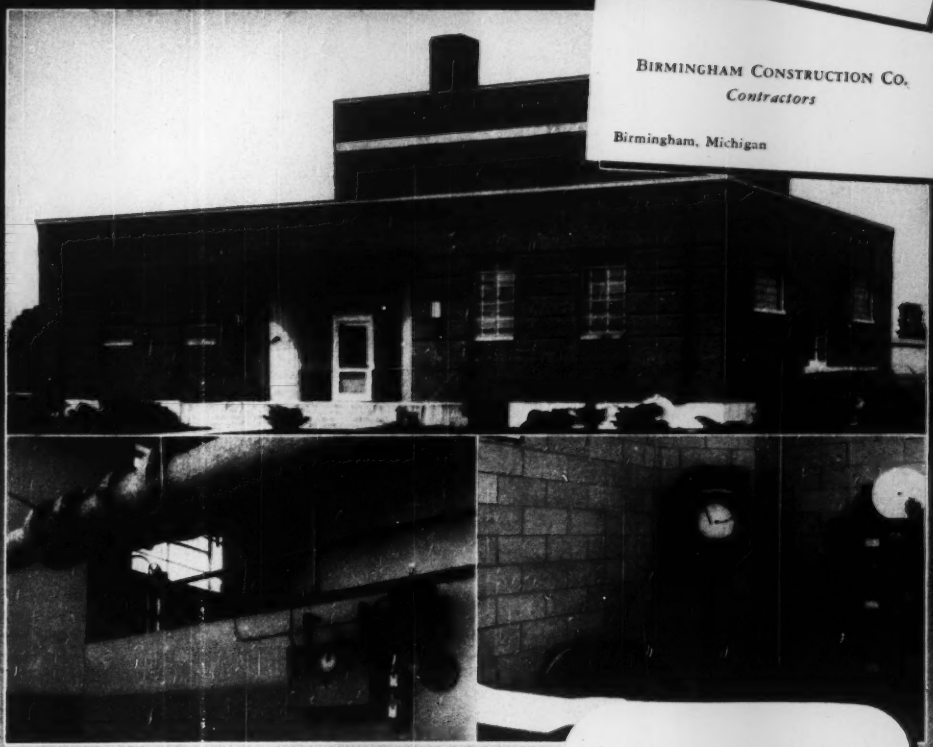
St. MARYS, OHIO

Water Softening Plant

(COMPLETED IN 1948)

FLOYD G. BROWNE & ASSOCIATES
Consulting Engineers
Marion, Ohio

BIRMINGHAM CONSTRUCTION CO.
Contractors
Birmingham, Michigan



The city of St. Marys and the town of Villanova, Ohio, may well be proud of this fine new water works. The plant treats up to 1¼ m.g.d. and produces an effluent of high quality — pure, soft, and free of turbidity. Builders water works equipment specified as a standard by the engineers, Floyd G. Browne & Associates, and installed under the supervision of Howard Palmer, Resident Engineer, gives Mr. R. E. Shoup, Superintendent, the necessary flow data to operate the plant at top efficiency. Raw water, finished water and the flows through the filter beds are metered and controlled by Builders equipment. Of great convenience to the Superintendent is the Chronoflo instrument, located near his desk, which shows at a glance the exact plant output. For complete information and Bulletins, address Builders-Providence, Inc., (Division of Builders Iron Foundry), Providence 1, R. I.

Builders water works equipment furnished the St. Marys Water Softening Plant:

12" Venturi Tube with Chronoflo Transmitter and Receiver for Finished Water

RCE Rate Controllers with Loss of Head and Rate of Flow Gauges for Filtered Water and Wash Water

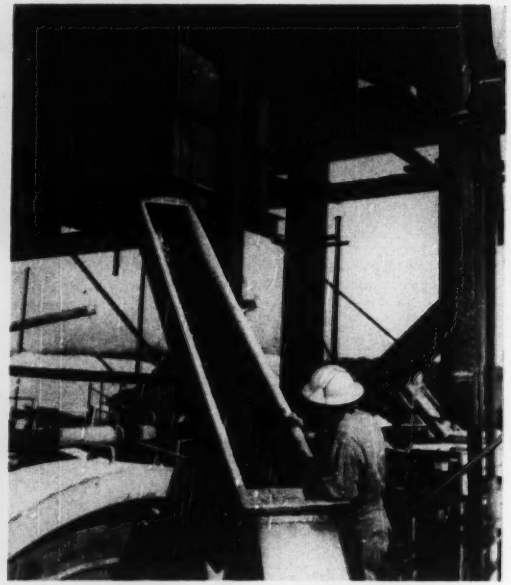
Filter Operating Tables

Clear Well Depth Gauge

Propeloflo Meters for Raw Water

BUILDERS PROVIDENCE
Instruments

TOUGH SPOT 1—Alloy steel plate liner in the screening plant discharge chute lasts four times as long as mild steel.



TOUGH SPOT 2—In this ¾ in. granite aggregate chute a ½ in. alloy plate lasts 3 months compared to 3 weeks for mild steel.

Alloy Steel Cuts Maintenance Costs In Aggregate Plant at Buggs Island Dam

As most construction men know, the steady grind of flowing and falling stone in an aggregate production plant raises hob with certain steel parts of the crushing plant and metal chutes in the processing line.

This was especially true during the early construction stages of Buggs Island Dam—a Corps of Engineer project on the Roanoke River in central Virginia—where the concrete aggregates are hard granite having a rattler test rating of 45. Aggregate is in 5 sizes from 6-in. down to ¼-in.

• **The problem**—The contractors' problem, briefly, was this: The enormous quantities of granite aggregate being produced—600,000 tons in the first 11 months of quarry operation—were wearing out steel parts of the crushing plant and conveyor systems at an alarming rate, resulting in unusually high maintenance costs. Mild steel plate liners in chutes and conveyors wore out, some of them within a week or two, under the punishing effect of the granite moving over them. Main processing units at the quarry are a primary crusher, a secondary crusher and three screening plants; the last including a rod mill for production of sand.

For layout and other details of the aggregate plant see ENR Oct. 6, 1949, p 30.

The general contractors, Jones, Tompkins and Wright, South Hills, Va., found an answer in a heat-treated alloy steel which is credited with saving more than $12,500 in the first few months of its use. Over 45 tons of the heat-treated plate, from ¼ to 1-in. has been used to line materials chutes and other aggregate-handling facilities at both the damsite and at the quarry, operated by Ralph E. Mills and Gorman Bros., Inc., Salem, Va.

Developed especially for abrasive service by Jones & Laughlin Steel Corp., and termed "Jalloy" steel, the manganese-molybdenum alloy has a yield strength of 160,000 psi, compared with 30,000 psi for mild steel not heat treated. It has a Brinell hardness of 341 to 388, as compared with 99 to 126 for the mild steel.

The heat-treated alloy steel is too hard to be cold-formed, but can be cut with an acetylene torch to fit flat dimensions. The chutes are framed in mild steel, with the heat-treated alloy steel being welded or bolted over the framework. Ordinarily, mild steel welding rods are used for welding, with stainless steel rods being used in locations subject to abnormal wear.

According to R. W. McCall, general manager for Mills and Gorman, the alloy steel has lasted an average of five times longer than mild steel (where direct comparison can be made). The alloy steel costs 10c per lb, as compared to 5½c per lb for mild steel, delivered at the job. However, the crusher plant used less than a quarter of the amount of steel that would have been required had ordinary mild steel been used throughout.

• **Typical Uses**—Typical uses for the alloy were: Under the primary crusher, a 4-ft x 12-ft x ½-in. plate is used for lining the bottom of the chute feeding onto the No. 1 belt. This plate receives impact and sliding abrasion, sometimes even wet abrasion, from 8-in. granite falling 4 to 6 ft. After more than 500,000 tons of material passed over it, the plate still had some service life remaining. By comparison, previous mild steel plate serv-

TOUGH SPOT 3—A ¾ in. alloy steel bottom plate in the by-pass chute at the chilling tanks lasts longer than ½ in. mild steel.

MILD STEEL PLATE (left) bellied and wore out rapidly, while alloy plates of the same thickness (right) lasted four times longer.

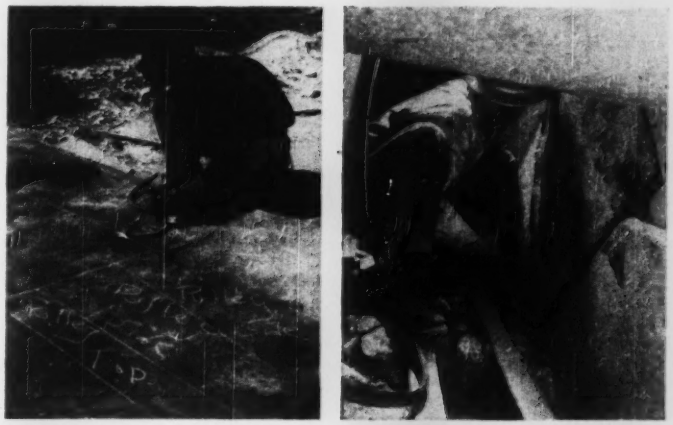
ice in this location was 50,000 tons.

Under the surge pile, a 4-ft x 12-ft x ¾-in. heat-treated alloy plate, moved back and forth by an eccentric arm, feeds 8-in. granite onto the No. 2 belt. A plate still in service has moved about 300,000 tons, compared to a maximum service life of 110,000 tons moved by a mild steel plate that was ¼-in. thicker.

The conveyor from the surge pile feeds 8-in. granite into a diverting box made of ¼-in. plate 4 ft x 6 ft on the sides and 15 in. deep. Subject to impact and abrasion, these plates show little wear after more than 11 months in service.

Conveyors from the first screening plant to the second, and from the second to the third, feed into discharge collector boxes with chutes splitting out from the bottom and feeding onto screens. The collector boxes on both units are lined with ¼-in. alloy plate which is still in good condition after 11 months of service.

In the discharge chutes of the second screening plant, bottom and side liner plates of the alloy steel—subject to 3-in. granite aggregate—have lasted four months compared to an estimated three weeks for mild steel. In the third screening plant, corresponding chutes lined with the same thickness of alloy steel, and subject to wet abrasion from ¾-in. granite, show a service life of three months compared to less than three weeks for mild steel.



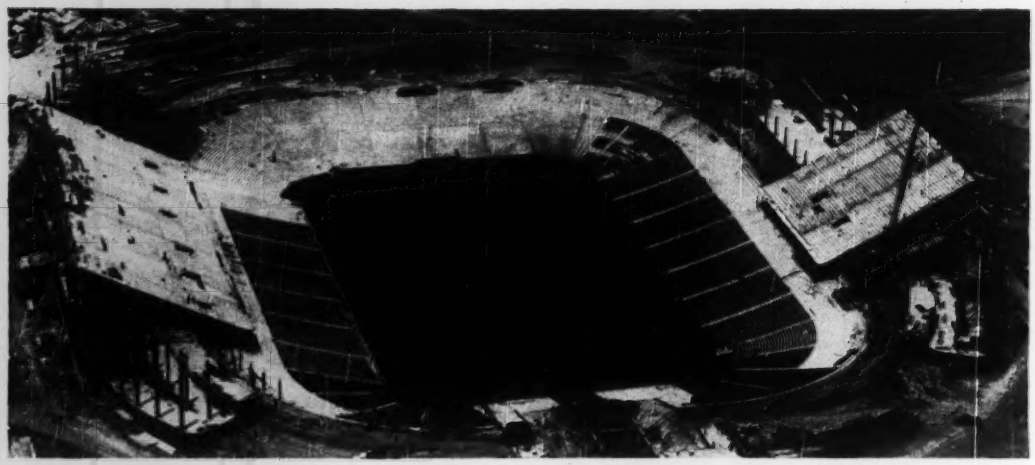
TOO HARD for cold-forming, the alloy steel plates are flame-cut flat (left); then they are bolted in place (right) or welded with mild or stainless steel welding rods.

Additionally, the alloy plates have been used to good advantage in lining truck bodies carrying rock to the primary crusher and to reinforce bucket teeth on the loading shovels.

Six miles from the quarry, at the damsite, the contractors have experienced similar results from using the alloy plates in chutes in the rescreening plant, at the chilling tanks, in the dewatering plant, and at other points.

Counting up the savings, the contractors say that of the 45 tons of the alloy metal installed at both the quarry and the damsite, a total savings in the cost of steel for maintenance amounted to more than $10,000 within eleven months. The ratio of liner plate used was one ton of the alloy steel to four tons of mild steel that would have been required. Maintenance labor savings, resulting from fewer replacement installations, amounted to an estimated $2,500.

J. Frank Hodges is general supt. for Jones, Tompkins, and Wright.



NINE-MONTH JOB—Rice Institute's new stadium at Houston, Texas, will rank with nation's major football plants, seating 70,000.

The Home Team Builds a Stadium

- **Impervious underground barrier keeps quicksand out of 30-ft.-deep bowl in Houston**
- **Big portable form units speed concreting, save owner more money on this non-profit job**

WHEN Houston's Rice Institute decided to build a new football stadium, one of the first decisions was to shop for construction talent in the home town.

The school engaged Houston architects Lloyd & Morgan, and Milton McGinty, to design the project, and then negotiated a construction contract with Brown & Root, Inc., Houston engineers and constructors. At this point a windfall came along. Brown & Root reciprocated the Rice civic loyalty by agreeing to work at cost. (Many suppliers and subcontractors also took no profit).

And work at cost they've been doing since last January—usually running two 10-hour shifts daily, in order to finish the 70,000-seat job in time for the first kick-off on Sept. 30.

A rectangular bowl in the ground surrounded by seats plus two 200-yd-long elevated stands comprise the stadium. The bowl has rounded corners; front seats are 15 yd from the sidelines of the football field; and the field is 27 ft below grade.

Except for a typical Houston ground condition, building the bowl section would have been a simple matter of pulling out 200,000 cu. yd. of dirt, spreading it around the edges to give the bowl greater useful depth and laying concrete seats on the trimmed slope.

However, 3 ft. above field level is the top of a water-bearing finesand stratum that varies from 8 to 22 ft in depth. It would be possible, (but costly) to pump the stratum's water out of the bowl, but the water would carry sand with it, eventually undermining the clay soil on which most of the stadium rests.

• Quicksand stratum cut off—Engineers decided that the cheapest way to stay out of trouble with the quicksand stratum was to confine it. They specified a continuous impervious core wall, to be placed under the bowl seats in the quicksand zone. The circumferential underground barrier would block off all groundwater, making drainage merely a matter of pumping stadium rainfall out of sumps. Under-field pipe drainage is extensive, designed to yield a dry field the afternoon after a morning downpour.

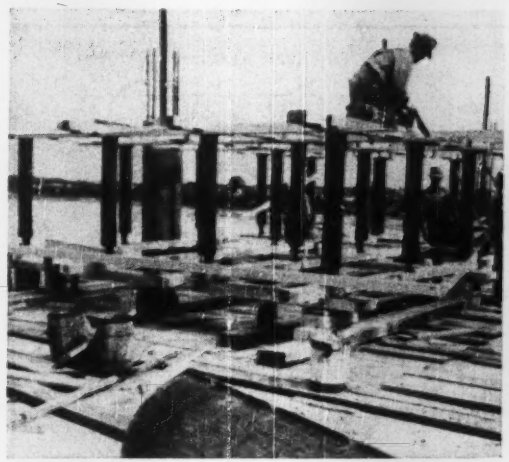
To construct the core wall, the contractor put a full-ring wellpoint header at the edge of the excavation about 5 ft. above top-of-sand. Points were placed a 4-ft spacing in 12-in. filter-sand-packed holes that extended 5 ft into clay underlying the quicksand. Four 6-in. pumps dried the core trench.

Even with the wellpoints working the contractor felt he had to work fast when he penetrated the sand. Exposing short sections at a time he dragline a trapezoidal trench down to underlying clay. Then he rapidly hauled in his clay core-wall fill, following each load with fast sheepsfoot-roller passes, to achieve 95 percent Proctor compaction.

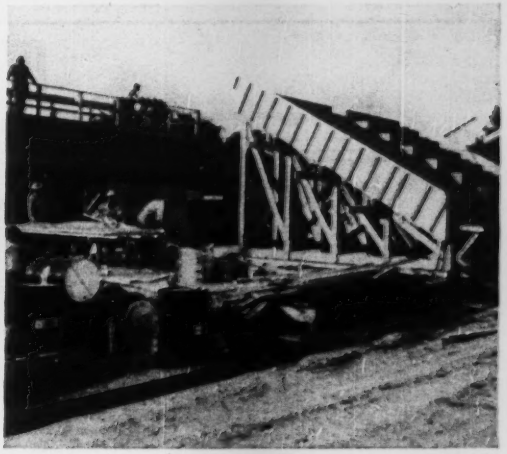
• Concrete construction—Bowl-seat concrete placement was done quickly, too, going at the rate of a 48-ft-wide full-height strip daily in the straight portion. This meant pouring 150 yd. of concrete in the second shift; stripping and re-erecting in the first shift next day. Fast stripping and re-erecting was accomplished with form assemblies that could be handled by crane (see illustration).

Above-ground, construction also is reinforced concrete. Maximum use of mobile forms also was made here. A typical assembly, illustrated, consisted of a framework whose vertical members were jack shores. Seat forms riding on the framework could be lowered 40 in. to clear main beams. The assembly traveled on casters.

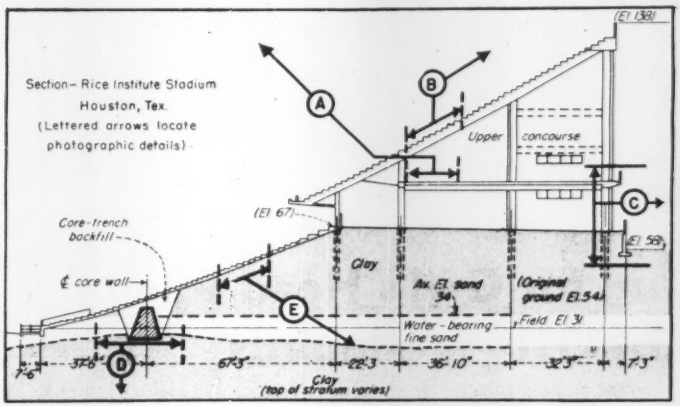
Column forms were steel cylinders, and columns were built on reinforced concrete piers built in bored belled-bottom holes. These foundations are typical in Houston. In this case they bear in the clay that overlies the quicksand stratum. Maximum bell diameter, for a 30-in. column, is 13 ft. On the job, Frank Knick is superintendent for Brown & Root, under C. J. Rollo, general superintendent. Walter P. Moore is structural engineer.

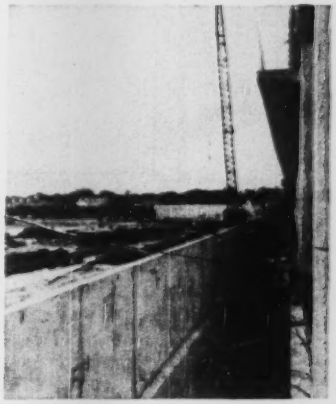


A . . . JACK-FRAME TRAVELER mounted on casters will support upper-deck forms, allowing 40-in. drop so that stripped form can clear deck beam.



B . . . UPPER-DECK FORM section stands on platform before transport to top of jack-frame traveler. Note observation platform atop carpenter shop.

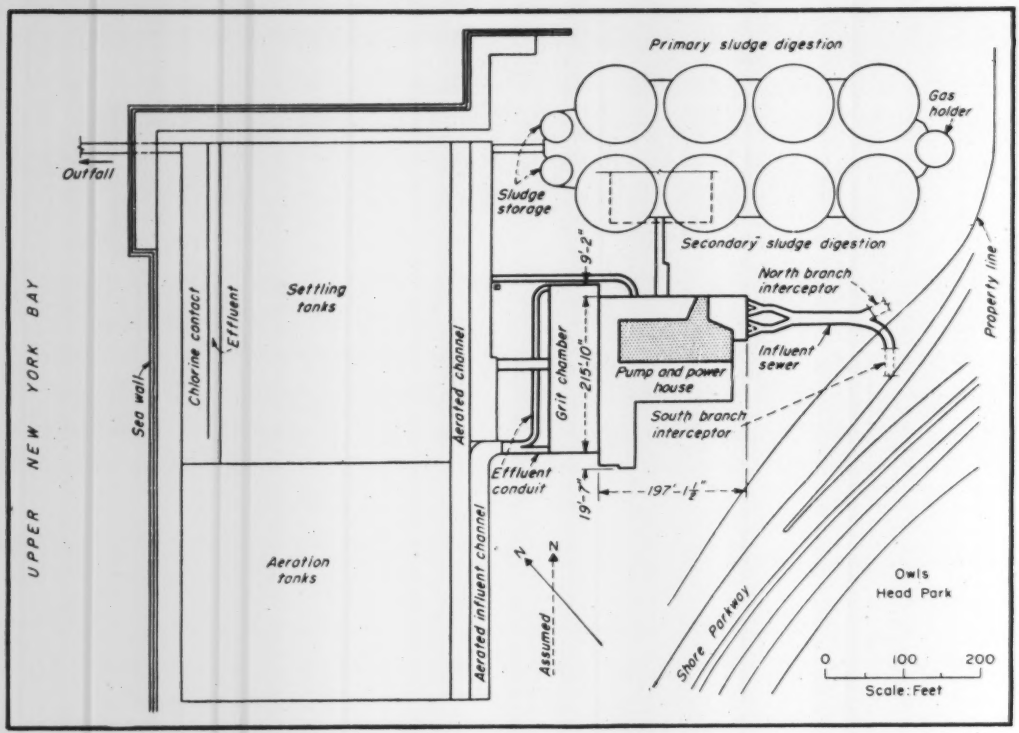




C . . . THIN-WALL MASTERPIECE. More than 100 yd long, this 4-in. wall was formed to perfect alignment.

D . . . EARTH DAM surrounds football field, to keep out quicksand. Protected by wellpoints, these scrapers and dozers place impervious core and dam-ditch backfill.

E . . . PORTABLE FORM for lower deck (on ground) receives pumped concrete. Five 48-ft-wide units are scabbed together, crane-hoisted separately to position for next pour.



SITE PLAN shows layout of Owl's Head treatment plant and the location (shaded area) of the deep pumproom excavation.

Deep Hole Dug for Owl's Head Pumps Dried by 518 Wellpoints

EXCAVATING in bayside fill, builders of New York City's 160-mgd Owl's Head sewage treatment plant went 34 ft below water in the bay to construct pump-and-powerhouse foundations. The whole pump-room and wet-well substructure area went that deep, and a small sump pit went 5 ft below the foundation level.

Excavation was carried down in a 150 x 60-ft bulkheaded area kept dry by 518 wellpoints. The procedure was this:

• **Digging the hole**—The area was first leveled off at El. 0.0. Next, 45-ft soldier piles (12-in. WF 65-lb) were driven to near El. −44 on about 8-ft centers around the perimeter of the area to be cofferdammed.

Excavation then started with a dragline and was taken down to El. −20. There, two parallel rows of pin piles (8-in. 36-lb sections) were driven, spotted to support the cofferdam's two interior bracing systems.

An upper bracing system was put in at El. −12. Parallel timber 12 x 12's running the 150-ft length of the roughly rectangular hole were bolted to flanges of the pin piles. Transverse timbers were bolted to the longitudinal timbers to brace the sheetpiling in the short direction.

All timber braces had 6 x 12-in. scabs extending from top and bottom at both ends to engage the 14-in. WF wales. The wales were designed to take horizontal earth pressures from the soldier piles.

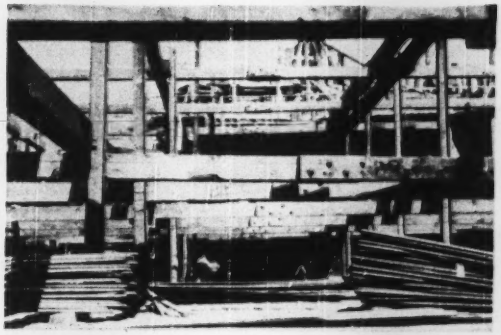
With the soldier piles thus braced at El. −12, poling boards were installed behind them from El. −20 up to El. −3, and space behind the poling boards was backfilled with available material.

Excavation with a clamshell then carried the hole down to El. −26 where the lower bracing system was installed—similar to that above. Poling boards below El. −20 were placed behind the inside (rather than the outside) flanges of the soldier piles as the excavation went down to El. −34.

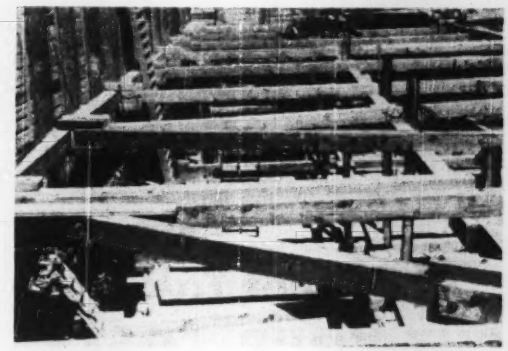
At El. −34, soldier piles were driven and braced with 6 x 6-in. timbers in the area's northwest corner for sump excavation. The final step in the digging process was excavation and placement of poling boards down to the bottom of the sump area—about El. −39.

• **Drying the hole**—Ordinary sump pumps were used to dewater the hole dug by dragline down to El. −20. Then, at that depth, the wellpoint system was installed.

An 8-in. header was run completely



BULKHEAD BRACING systems, bolted onto pin piles . . .



TAKE THRUST of earth, held by poling boards behind steel soldier piles and timber walers.

CONCRETE WALLS were poured, then the deep chainbar was filled with water to combat uplift.

around the hole's 496-ft perimeter at El. −18; 373 wellpoints of 1½-in. dia on 21-ft. risers were connected to this header. Another 8-in. header some 164-ft long was put at El. −22 as a by-pass line, so that section pumping of about half the perimeter at a time could be done if required. This header had 100 wellpoints on 17-ft risers.

The total of 473 wellpoints at El. −39 were well able to keep the excavation dry to that depth.

In the sump pit area, 45 more points were sunk from a 6-in. header at El. −33 to a depth fully 26 ft below the groundwater table and 45 ft below the bay.

Eight 8-in. wellpoint pumps were installed. Six operated continuously, pumping about 3 mgd, and two were maintained on a stand-by basis.

The hole was kept dry while timber piles were driven and the bottom slabs of the sump pit, wet well and pump room were poured. With the bottom thus sealed off, the wellpoint system was continued in operation until the side walls could be poured. Walls were brought up to El. −3 and water was pumped into the enclosed space to counteract flotation before wellpoint operation was discontinued and the wellpoints were removed.

• **Tank area drying**—A dewatering problem of secondary magnitude faced the contractor in foundation construction for aeration and settling tanks.

The 8-acre area they will cover is on the bay side of the pump and power house, bounded on both west and north by open water. (The plant is situated on Upper New York Bay right at the head of The Narrows.) On its northwest, the area is protected by a seawall built under an earlier contract, but still water gets through in amounts varying with the tide. Ditches were dug along the south and east sides of the area, sloping to a sump in the southeast corner, where four 10-in. pumps can handle high-tide infiltration, pumping it into a nearby arm of the bay.

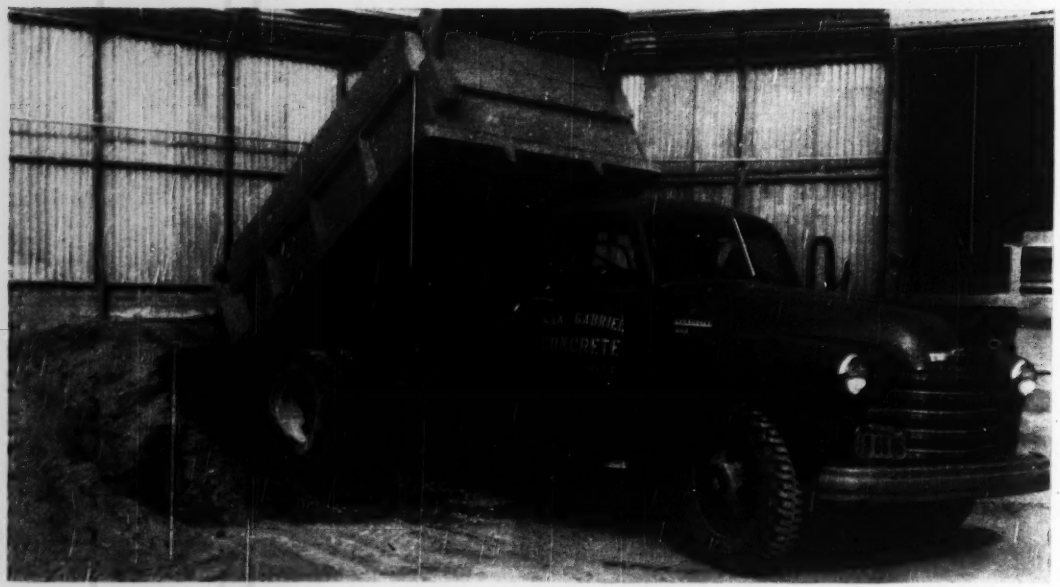
About 11,000 timber piles are being driven into this tank area at El. −3.25. Ten aeration tanks and 15 settling tanks will rest on one continuous slab, 12-in. thick. This reinforced slab will span the rows of piles driven to support the walls between the individual, long rectangular tanks.

Circular sludge digestion tanks with 108-ft outside diameter and 39.5 ft high are being built of concrete prestressed in both directions. These represent New York City's first venture into prestressing.

Contracts under which major structures described in this article are being built amount to about $10,000,000 and are held by Thompson-Starrett Co., Inc., of New York City. J. Rich Steers, Inc., also of New York, was subcontractor on the excavation and pile driving for the pump and power house foundation. Complete Machinery & Equipment Co., Long Island City, supplied the wellpoints.

Cost of the entire plant, fully equipped, is to be near $21,000,000. Its completion in May, 1951, will be a major step in the city's 5-year program to clean Class A waters by 1953.

Design of the plant and supervision of the work has been carried out by the City Department of Public Works under Frederick H. Zurmuhlen, commissioner. Leo Magid is the department's resident inspector. For the Thompson-Starrett Co., Walter E. Schull is construction superintendent.



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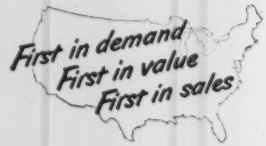

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Chevrolet heavy-duty trucks with Loadmaster engine actually deliver *more horsepower at the clutch* . . . more *net* horsepower—proved by certified ratings on engines used as standard equipment in conventional models of the five most popular makes, 13,000 to 16,000 lbs. G.V.W.* Here, then, is power to *move* big payloads . . . in a truck with strength to *carry* big payloads . . . and these add up to outstanding, all-around efficiency. You save on gas, oil and upkeep, cutting your costs on every haul! See your Chevrolet dealer—get the full story of Chevrolet leadership. **Gross Vehicle Weight*

CHEVROLET MOTOR DIVISION, *General Motors Corporation*
DETROIT 2, MICHIGAN

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READER COMMENT

Bargaining by Engineers

Sir: Reversing the usual procedure of saying nothing when you agree with the editors, let me say that I agree perfectly with the sentiments given or implied in the editorial "Collective Bargaining by Engineers" in the Aug. 17 issue, p. 23.

I am a registered professional engineer in New Mexico, a member of NSPE and a member of the New Mexico Society of Professional Engineers. I am chairman of the editorial board of our state magazine and state director for the Albuquerque Chapter of our state society. My main work is in the field of public education along with some consulting work in civil engineering and various engineering jobs throughout the summers.

In my young days I worked my way through college by working nights as a machinist and along the route I acquired membership in the International Association of Machinists (IAM). I am not a Communist; I am a Republican leaning to the conservative side. In what I say I shall speak as an individual. I have spoken these same words in meetings so my societies are aware of my opinions though they may not agree with them.

Let us take a common example: One summer I went out before school closed to get a job for the three months vacation. I went out to a contractor who had advertised for a couple of civil engineers. He asked me "how much do we have to pay you to get you to do this job?" I replied that undoubtedly such jobs carried a standard rate of pay and that would be what I would expect. He replied that he would take my name and if anything came up he would let me know. I knew right then that he aimed to play every engineer against the other one until he found the hungriest one to hire.

School was about out. I tried a couple of other hiring groups then gave it up. When school was out I packed my machinist tool box, dusted off my IAM card and headed for the Pacific Coast. There I applied for work as a machinist journeyman. I was employed. I did no wrangling with any boss as to how much they had to pay me before I would start to work. I was not played against anyone else. In the same outfit where I worked a number of civil engineers were employed. They earned less at that profession than I earned at the trade.

I have seen this same thing repeated many times and I do not like it. It will continue just so long as we engineers take the high and mighty stand that to be "professional" we must bargain individually as to money matters. The local lawyers here in the state are organized into a Bar Association which sets certain minimum fees for various jobs. Physicians have had the tightest of closed unions for many years and their fees are standard. Moreover, the physicians and the lawyers are seldom employed by people of the same profession—PEOPLE WHO WOULD KNOW BEST HOW TO EXPLOIT THEM. This is not true with the engineers. They are usually employed by outfits which have an engineer higher up setting the price for the engineers lower down.

The wages of engineers and school teachers have gone up in recent years due chiefly to two things, I believe: (1) Currency has been inflated and they are getting one and one half as much money now that the dollar is worth half as much as it was before. (2) Employers that have had to deal with unions have become resigned towards paying more, even to men who do not belong to a union. Thus as I see it our chief gains as engineers and school teachers have been derived in a left handed way by riding in under cover of the protection of unions which we have scorned and belittled.

We need not belittle the tradesman. He is respected as much as we are. I am somewhat inclined to think that the worker—trade or professional—is respected in just about the same proportion as the public must pay for his services. If he works for less through competition at his own level and through chiseling from his professional supervisor, he deserves little in the way of respect and gets little. There are many rackets going on under cover of union manipulation but the fundamental idea of collective bargaining is all right as far as I can see. It is pretty much indispensable as I see it. To hold their members the National Education Association, of which I am a member, has unbent a little and has copied the trade unions in a small way. This unbending has, in my mind, resulted in the only help it has ever given its members. I believe as a member of the NSPE that it had better unbend a lot more and come out with some ideas of doing something in a financial way for its members.

E. R. HARRINGTON
Albuquerque, N. M.

The very lean mixes used in dams and other mass concrete construction are usually quite difficult to place. Fort Gibson Dam, Grand River, Oklahoma, was started and finished with Darex AEA concrete to increase placeability . . . eliminate the use of excess water, reduce bleeding.

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Darex *AEA* is the **only** catalyzed air entraining agent specifically formulated for making air entrained concrete. It is **not** a by-product. It contains **no** vinsol resin.

Darex *AEA* is in use everywhere on every type of concrete construction . . . and in ready mix and concrete products plants using every known type of aggregate.

Darex *AEA* is conveniently available in distributor warehouse stocks throughout North and South America and in most foreign countries.

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A 10' X 12'
LOW COST
STEEL BUILDING
OF
1,000 USES

Portable or Permanent
USF
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No Field Welding or Riveting
2 Men Can Erect
Expansible!

Just the ticket for a field office, tool house, storage house, pump house or any one of a thousand uses for contractors and engineers. The USF Handy-Hut is an all-steel, prefabricated formed steel frame that simply bolts together with box corrugated roofing and siding sheets that attach with clip-and-wedge fasteners. No special tools are needed, no field punching, welding or riveting is required. Meets fire and windage codes most localities and is suitable for either permanent or portable use. Multiple units may be erected to accommodate any size requirement without special engineering.

USF also produces larger steel buildings of the same general construction in 10' and 12' clear heights with 26' or 30' span widths for erection in length multiples of 13'-4" to any desired size.

WRITE FOR DATA

USF United States Steel Fabricators, Inc.
Wooster, Ohio

DEVELOPMENTS ABROAD

Volga power plant to be world's largest according to claims of Russian designers

Reservoir 310 miles long to store water to irrigate 2,250,000 acres—Dam to contain nearly 8 million yards of concrete

The Russian Council of Ministers has announced a 5-year power development program for the Volga River, which envisages a 2,000,000 kw hydroelectric station near Kuibyshev to supply increased power to Moscow, Saratov, and other cities. Grand Coulee will have 1,974,000 kw.

It is also proposed to use impounded water from the river to irrigate almost 2,250,000 acres of at present semi-arid land in the basin of the river.

The chief architect of the Kuibyshev works is S. Y. Zhuk. The United Press quotes him as saying that this will be the greatest powerhouse ever built. The plans call for a hydro-electric station, concrete and earthen dams, passages for ships and a broad-gage railroad and automobile highway across the top of the dam.

According to the rather amazing information issued, the dam will raise the water level of the Volga by 82 ft.; the reservoir will extend 310½ miles; construction will require 7,848,000 cu yd of reinforced concrete and 166,200,000 cu yd of earthworks.

National Gallery, London to be air-conditioned

During the war, London's famed National Gallery collection was removed from Trafalgar Square and stored in mountain caves, which had to be equipped with air-conditioning.

This emergency expedient served to emphasize the worth of air-conditioning—for it was found that the damage to the pictures hitherto caused by fluctuations in humidity was reduced by nearly 75%.

So, after the war, it was determined to air-condition the whole of the National Gallery. This work is being planned, but it may take a good many years before the whole project is completed.

However, the gallery has just opened the first of three new rooms which are completely air-conditioned and equipped with fluorescent lighting. British companies have the contracts.

In the layout of the plant the least possible major structural alterations have been made. The air supply duct system has been arranged in existing crawlways under the ground floor and the walk have been brought forward to house the air ducts.

Fluorescent lighting, too—Up to about 20 years ago the National Gallery had to be closed at dusk, for there was no artificial lighting. When high-powered tungsten lamps in carefully designed lanterns were provided, the wall illumination was thought to be extremely good—at 3 to 4 ft.-candles. With the new fluorescent tube lighting extensities of 15 and 20 ft-candles are achieved.

The new system is intended to provide sufficient illumination of good color-rendering quality from a concealed source. The glass ceiling is suspended 21 ft above the floor; this layout insulates the room against temperatures losses through the glass roof. It also screens the artificial light fixtures which are so designed that they do not interfere with the natural daylight. The glass has been made specially for the purpose. Unlike ordinary glass, it does not alter the color of sunlight in the picture gallery.

Venice-Locarno canal

The Italian senate is now considering the idea of building a large waterway to connect Venice with Locarno, Switzerland through Milan, thus reviving an old plan the execution of which was interrupted by the war.

However, the route will differ in that it would pass through Brescia, Milan and the Lago Maggiore, not

(Continued on page 51)

STANDARD ENGINEER'S REPORT

DATA

LUBRICANT RPM Tractor Roller Lubricant

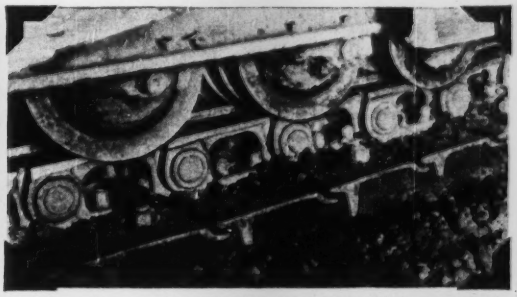
UNIT Track bearings — International TD-6 Bulldozer

CONDITIONS Continual shock loads working on pavement

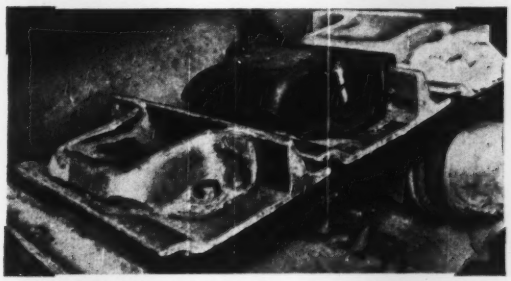
PERIOD 2 years

FIRM Barrett + Hilp, San Francisco

Track-roller bearings last twice as long as expected!



CONTINUALLY POUNDED BY SHOCK LOADS from working on pavement, track-roller bearings greased with RPM Tractor Roller Lubricant have been in service on this tractor for 3325 hours. They are still in good condition despite the fact that they have already doubled their normal life-span. The unit has had many different operators in the two years it has worked. All work has been bulldozing back-fill of trenches on streets or moving from job to job on other pavement. Under these conditions, Vernon Dresser, Head Mechanic on the job for Barrett & Hilp, expected, at the most, 1500 hours service from the bearings.



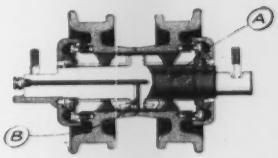
WORN STREET PAD on the track. In use only 18 months, its excessive wear indicates the tough street service the tracks have had. Note the new pad, right, placed alongside for comparison. The tractor has worked in a variety of climates, including one job in a series of dust storms in summer temperatures over 100° in the shade.

REMARKS: There are three grades of RPM Tractor Roller Lubricant—Light, Medium, and Heavy to meet all operating conditions in International and Caterpillar track-roller bearings. For Allis-Chalmers, RPM Tractor Roller Lubricant—A.C. Type is recommended.

RPM

TRADE MARK "RPM" REG. U.S. PAT. OFF.

How RPM Tractor Roller Lubricant resists wear in the toughest service



It flows evenly to all bearing surfaces, lubricates and retards rust formation.

A. Contains chemical anti-wear agent—maintains tough lubricating film.

B. Has improved stringiness compound—sticks on surfaces, resists leakage, helps keep protective grease seal outside bearings.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

STANDARD OIL COMPANY OF CALIFORNIA • San Francisco
THE CALIFORNIA OIL COMPANY • Barber, N. J., Chicago, New Orleans
STANDARD OIL COMPANY OF TEXAS • El Paso, Texas
THE CALIFORNIA COMPANY • Denver, Colorado

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New CRANE BOOM . . .

- ✓ Wide, deeper, stronger.
- ✓ Quick-action pin connections.
- ✓ Usable in 100 ft. lengths, 130 ft. with extensions.
- ✓ 6 part hoist line reeving with 3 sheave boom head.
- ✓ Eight-part boom derricking.
- ✓ Convertible to clam, drag, shovel, hoe.

25-TON CAPACITY

2 Models

MC-504 (102" wide)

MC-504W (120" wide)

New TURNTABLE

- ✓ Hydraulic Coupling gives the smoothest operation—removes the jerks and slam-bang from crane operation.
- ✓ New, wider, shoe style swing clutches with floating anchors.
- ✓ Turntable rollers on anti-friction bearings.
- ✓ Self-aligning Center Pin design.

New CARRIER

- ✓ Specially designed for shovel-crane impacts and stresses.
- ✓ Box section side members 10% deeper than used by others.
- ✓ 220 H.P. Gas Engine.
- ✓ 10 forward speeds (30 M.P.H.); 2 reverse speeds.
- ✓ Man-saving air assist steering.

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using the Po and Mincio rivers.

The estimated cost of the new plan is about $725,644 a mile so that the longest stretch—from Porto Marghera to Milan by Brescia would cost about $120,000,000. But it is thought that this great expense would be justified if the port of Venice could once more obtain considerable traffic with Switzerland and other parts of central Europe.

Foreign Briefs

Greek water supply—From the Marshall Plan counterpart fund 1,000,000,000 drachmas ($60,000) have been provided to pay for the first costs of rehabilitating the water system of Salonika. The city has already received 1,500 tons of cast iron pipe and 1,500 water meters from funds furnished by the American Mission for Aid to Greece, which preceded the Marshall Plan.

Tel Aviv harbor—According to Alexander Zipstein, manager of the port of Tel Aviv, Israel, a $50,000,000 harbor improvement program is under consideration there. About $100,000 has already been spent on studies for the projects. At present there are practically no docking facilities, and for about 40 days during the winter the port is virtually closed to traffic because of heavy seas and bad weather.

Egyptian public works—A new plan, embodying the Aswan Dam hydroelectric scheme and also the iron ore and fertilizer factory projects in the same area, has been drawn up by Osman Moharram Pasha, the Egyptian Minister of Public Works. The cost of the scheme is estimated at 100,000,000 English pounds over a period of five years. It is said to be the intention of the authorities to contract national loans to meet the cost of the plan. The Minister of Public Works is also reported to be working on plans for reservoirs and the reclamation of land. Sir Murdoch Macdonald, British engineer, has been engaged to help supervise the construction of four dams on the Nile—at Wadi el-Ragan, in the Nile Delta, at Lake Tana in Ethiopa, and the fourth at Merwa in the Anglo-Egyptian Sudan. Work on the raising of the Lake Victoria Dam at the source of the Nile will start in two months. It is to be raised a little over three feet. The increased water supply will be used to irrigate vast stretches of desert land in Egypt and the Sudan. The Edfina Dam, the first to be conceived and executed entirely by Egyptain engineers is well under way on the Rosetta branch of the Nile, 30 miles from the Mediterranean.

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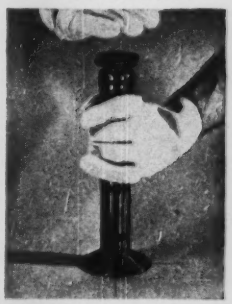

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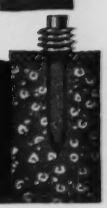

MUNICIPAL AFFAIRS

THIS IS SEATTLE, WASH.—Puget Sound to the west, Lake Washington to the east, Elliott Bay in the right foreground, and 14,408-ft Mount Ranier about 100 miles to the south in the background. For particulars of this view read the paragraphs below.—Josef Scayla photo.

Seattle—largest city for its age

That is the claim this city makes because it has grown from 24 inhabitants a hundred years ago to 462,981 today.

North-south traffic now must pass through the heart of the business district in the foreground of this view. Beginning early in 1952, however, it will be diverted along the waterfront to the right over the $8,500,000 double-deck Alaskan Way viaduct, construction of which recently was begun through city and state cooperation. Traffic will enter the viaduct through a tunnel at a point near the lower right-hand corner of this picture, continue to the point where Alaskan Way turns sharply to the right.

Visible at the piers are the ferries which link Seattle to points across Puget Sound. These would be eliminated under a plan now being investigated by the State Toll Bridge Authority. This plan, upon which preliminary action may be taken by the 1951 state legislature, would call for bridges over or tubes through Puget Sound to the Kitsap peninsula via one of two islands at a cost of at least $50,000,000.

Visible at the left is Lake Washington, over which east bound traffic from Seattle is carried on a floating bridge. To give westbound traffic from this bridge, on the main route from Eastern Washington, a more direct approach to the city's industrial section at right center, the city plans some day to tunnel through Beacon Hill, in the center of this photograph. A second bridge across the lake may be necessary in five years.

Bids are expected to be called about the first of the year for an extension of the main runway at Boeing Field, out of sight down the flat area to the right. This $1,000,000 project, sponsored by King County, will lengthen the runway from 7,500 to 10,000 ft and necessitate relocation of a secondary highway adjacent to the field. It will permit testing of large new planes to be manufactured by the Boeing Airplane Co.

The city is spending some $2,000,000 annually on Local Improvement District paving projects and plans to spend $1,500,000 this year and next on sewer system improvements. It has just completed a $500,000 shop building, believed to be one of the finest of its type in the West, for its city engineering department and will complete work this fall on a $6,000,000 Public Safety building adjacent to the County-City building.

Seattle's population, according to 1950 preliminary figures of the Bureau of Census, is 462,981. The nearest point to the Orient, the city is a busy shipping point during the Korean crisis and also is the main supply point for Alaska. The Chamber of Commerce describes Seattle as the "center of the two greatest developments of our time, Alaska and the Columbia River Basin." That's taking in a lot of territory but Seattle, in common with other Pacific Northwest cities, expects to grow with the Bureau of Reclamation's Columbia Basin development.

Traffic matters

Rochester, N. Y.—The City Planning Commission will study the problem of the eyesore parking lot. Harry P. Ruppert, commission chairman, said the group will consider measures to make such lots attractive and at the same time an economic asset to the neighborhood. One possibility is that a sample lot may be developed, either by the city or private owner, in cooperation with the commission, to show what can be accomplished both economically and aesthetically.

Erie, Pa.—The City Traffic Commission has recommended creation of a parking authority with full right to purchase or condemn property needed for municipal parking. The 1949 city legislature authorized the formation of such a body.

Indianapolis, Ind.—Business men have asked Mayor Feeney for parking meters on streets surrounding the Southeast Side shopping center. The request was the first received from outlying Indianapolis business districts since meters were installed nearly a year ago. Mayor Feeney said the petition will be sent to the Works Board for immediate action.

Nashville, Tenn.—The city has retained the Chicago engineering firm of H. W. Lochner & Co. to make a survey of off-street parking needs. Harry Lochner, head of the firm, personally will supervise the work. Upon completion of the studies, the plan will be turned over to the Nashville Parking Board for its consideration and to put into effect the accepted recommendations.

Minneapolis, Minn.—Construction of a four-story parking garage to accommodate 541 cars on the parking lot at Marquette and Fourth Sts., is planned by the Downtown Auto Park, Inc., organized by Minneapolis business men. Estimated cost of the open air structure is in excess of $500,000.

Hartford, Conn.—City Manager Sharpe has informed the city council that the cost of building an underground parking garage in the downtown area would be excessive; that sub-soil conditions are not favorable; and that doubt exists as to the usefulness of such a structure as a bomb shelter. The cost of building an underground garage would be about double that of an aboveground garage of the same capacity.

Lithographed on stone by Edward A. Wilson

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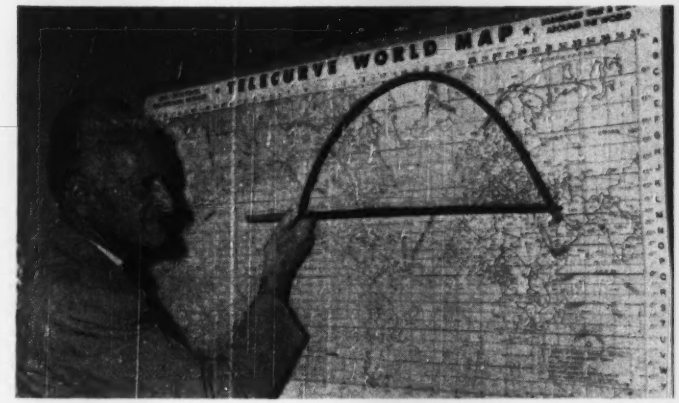


SHORTEST DISTANCE BETWEEN TWO POINTS—Notwithstanding Euclid, it's not always a straight line, says Felix Locher, originator of "Telecurve" illustrated above, as he uses a curved wire to link Los Angeles and Iraq on one of his maps. The curve follows the spherical shape of the earth. Locher added route and distance curves to the usual flat world maps to dispel their distortion. The route pole is Los Angeles, the anti-pole is shown east of Capetown.—Wide World photo.

New Mexico commences rainmaking study

What is said to be the first state-fostered rainmaking study projects recently got under way at the School of Mines, Socorro, N. M.—made possible by $17,500 from the New Mexico Economic Development Commission and from the state. The project had been inaugurated at a meeting of 200 of the state's leading ranchers, farmers and business men, and a number of scientists. Concern of the meeting had been to halt what the scientists call "wildcat cloud-bursting." Irving Langmuir, Nobel prize winner, said that he was almost certain that floods in the Mississippi and at Winnipeg had been caused by indiscriminate cloud seeding in the Southwest. The project, headed by E. J. Workman, president of the School of Mines, has the consultant services of Dr. Langmuir, who had been in charge of Operation Cirrus, a General Electric Co. rainmaking project at Schenectady, N. Y.

The studies will attempt to determine relative effectiveness and stability of several cloud-seeding materials; find effective methods of dispersing such materials; devise methods of tracing seeding materials in order to establish procedure for seeding control; make a statistical study of rainfall data correlated with atmospheric circulating patterns; make field tests of existing procedures, and possible new procedures in critical areas of New Mexico.

Educational Notes

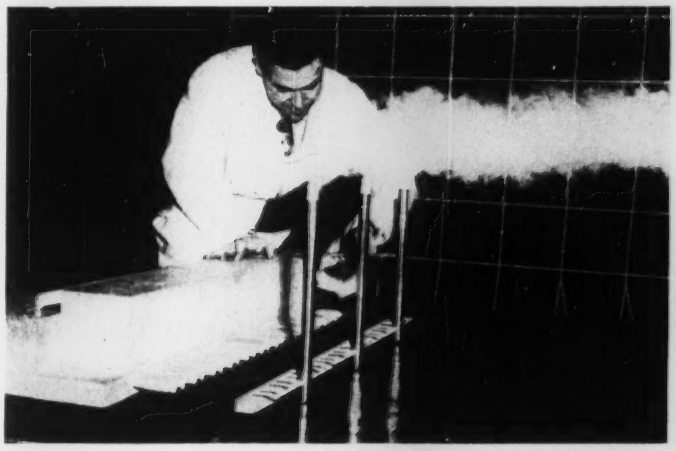
Case Institute head named—Elmer Hutchisson, dean of the faculty of Case Institute of Technology was scheduled to take over the office of acting president the first of this month following the departure of President T. Kieth Glennan (ENR Aug 24, Page 31) for Washington and his post on the Atomic Energy Commission.

J. C. Stevens Award—Dean William Allen of New York's City College School of Technology has been given the J. C. Stevens award of the American Society of Civil Engineers for his part in a symposium on the Panama Canal. Prof. Allen's prize paper is published in Transaction, the society's publication. Citation of Prof. Allen as winner of the award will be made Oct. 11 at the society's annual meeting in Chicago.

Traffic fellowships—Fifteen graduate engineers from 11 states have been awarded fellowships and scholarships for study in Yale University's Bureau of Highway Traffic during the academic year 1950-51. Nine of the fellowships are sponsored by the Automotive Safety Foundation, while the tenth, the Gordon-Cass Memorial Fellowship, is provided by the American Transit Association. The remaining five tuition scholarships are made available by the Bureau of Highway Traffic.

Faculty—G. G. Dodd, professor of Civil Engineering at McGill University Montreal, has retired after 37 years service.

William E. Dobbins has been appointed associate professor of sanitary engineering at the New York University college of engineering.



STUDY OF SMOKE—Charles P. Randell, Research Division, New York University college of engineering, makes adjustments on a building model and three smokestacks built to scale for use in a new type of wind tunnel designed especially for the investigation of stack gas dispersion. The $50,000 tunnel is 60 ft long and has a working section 30 ft long, 3½ ft high and 7 ft wide. An 8-ft propeller at the downwind end of the tunnel can produce wind velocities from nearly zero up to 30 miles per hour. Object of the research is to study stack gas patterns which will reflect the influence or terrain, building size and location, stack height and atmospheric conditions.

MEN AND JOBS

A. B. Ritter, regional engineer with the Louisiana State Health Department since 1946, has been named acting chief, section of insect vector control, and state director of malaria control.

John McGhee, engineer with the Montana state highway department since 1925, has been appointed Billings city engineer to succeed **Kenneth L. Chrysler,** resigned to enter private practice. McGhee spent his first 12 years with the highway department in sections of northern Montana. In 1936 he became district engineer at Lewistown, and since 1949, has been engineer of the Lewistown-Billings division.

Emmett E. Brady has been appointed the first full-time engineer for Los Gatos, Calif. He was graduated from the University of Santa Clara, Calif., in 1938, and worked with C. P. Albanese Construction Co. He was with the Navy Civil Engineering Corps during World War II, and prior to his appointment in Los Gatos was with the Clyde C. Kennedy sanitary engineering firm, San Francisco.

Lt. Col. Clarence Bidgood has become executive officer of the Louisville, Ky., district of the Army Engineers. A 1935 graduate of West Point. Captured at Bataan, he spent 3½ years in Japanese prison camps.

Brask Engineering Co., formerly Geo. P. Carver Engineering Co., has removed its offices to 177 State St., Boston, Mass.

Col. Herman W. Schull, of Chicago, West Point, 1927, has been appointed Buffalo, N. Y. district engineer of the U. S. Army Corps of Engineers. He has been serving as assistant division engineer for the Great Lakes Division of the Corps, and succeeds Col. Frank H. Forney, transferred. Construction projects over which Colonel Schull will assume control include the $20,000,000 Mt. Morris Dam and the deepening of Buffalo harbor.

Porter Roberts has been elected commissioner of public works for Rochester, N. H. He heads the combined highway, water, sewer and parks departments. Formerly he was with Warren Bros. Road Co., Cambridge, Mass., and later with the New Hampshire Highway Department. Since 1947 he has been street commissioner at Rochester.

Lt. Col. Bert K. Whaley has been

(Continued on page 58)

Clarence C. Davis is the new resident engineer at Detroit Dam on the North Santiam River in western Oregon, succeeding Lt. Col. John W. Miles, transferred to Okinawa. A civil engineering graduate of Texas A & M University, Mr. Davis joined the Corps of Engineers in the Galveston District in 1927. He has been with the Vicksburg, Fort Peck, and Charleston districts. He saw service in North Africa, Italy, and Okinawa. Since January he has been staff engineer for the New England Military District.

New Officer-in-Charge of the San Antonio sub-office of the Corps of Engineers is Lt. Col. W. P. Jones, Jr. He succeeded Lt. Col. Charles D. McDaniel who became executive officer of the Galveston District of the Corps of Engineers with headquarters at Galveston, Tex. Prior to his San Antonio assignment, Colonel Jones served as executive officer of the Personnel Division in the Office of the Chief of Engineers in Washington. He received his master's degree in civil engineering at the University of Illinois.

These men are working for you

Energetic, keen-minded JOHN G. SEILER, Tube Turns' Executive Vice-President and General Sales Manager, keeps a sensitive finger on the pulse of your piping needs.

Solid, wiry JOHN W. GREEN, Sales Manager of Tube Turns' Fittings Division, arrives in New York for confab with Eastern representatives.

Rangy, quick-smiling THOMAS H. PIKE, Jr., Assistant Sales Manager of Tube Turns' Fittings Division, awaits flight call for personal check on West Coast piping picture.

JOHN E. CHUMBLEY, slender, youngish Sales Manager of Tube Turns' Forgings Division, makes frequent field trips that pay off in better products, faster service.

MOST travel-minded group of American businessmen today are sales executives. Covering millions of air, rail, and highway miles each year, these modern Marco Polos have chucked the Ivory Tower attitude of their predecessors.

Like many another sales management team, John Seiler, Jack Green, Tom Pike and John Chumbley look upon service as the father of sales. "Our customers are smart," confides Seiler. "They don't just *buy*, they *discriminate!* Field trips are the best way I know to find out how we can serve them better. It takes plenty of leg work in this business. Your customer can usually give you some pretty solid ideas on product improvement. We've prospered because we listen to what he says . . . *in person!*"

Some 2200 distributor salesmen, the sales-engineering staffs of Tube Turns' 8 district offices, and the finest group of piping technicians in the industry, follow this customer-service policy to the letter. Results: Tube-Turn welding fittings and flanges are the best in the company's history; Tube Turns' customers get qualified help in utilizing its products more and more profitably.

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Louis G. Mertz, Jr., construction engineer, has joined the staff of Webb & Knopp Inc., New York, as supervisor of construction. He has been prominent in the building industry for the last 30 years. He has built office and commercial buildings, plants for light and heavy industry, public utilities and mills, theaters, schools, hospitals and churches.

made assistant to the district engineer of the New Orleans district, Corps of Engineers. He succeeds **Col. L. B. Wilby**, transferred. Colonel Whaley formerly served with occupation forces in Japan and Korea. He was instructor at the engineer school, Fort Belvoir, Va. He attended Texas A. and M. College.

Col. Frank H. Forney, Buffalo, N. Y., district engineer of the U. S. Corps of Engineers, has left for Ft. Campbell, Ky., where he will take command of the 19th Engineer Battalion. Colonel Forney has been Buffalo district engineer since May, 1949. He previously was in charge of the repair and utility division, office of Chief of Engineers, military construction division, in Washington. A graduate of West Point in 1929, he obtained a bachelor of science degree from the University of California two years later.

Prof. Franklyn C. Rogers has taken a leave of absence from Rutgers University to become chief design engineer on the Maithon Hydroelectric Project, being designed for the Damodar Valley Corp. by the Harza Engineering Co. of Chicago. Mr. Rogers is in Ranchi, Bihar, India, where most of the design work will be done under Mr. Rogers' direction.

B. Hudgins, formerly with the Missouri State Highway department, is now project engineer on the Denver-Boulder Turnpike, Boulder, Colo.

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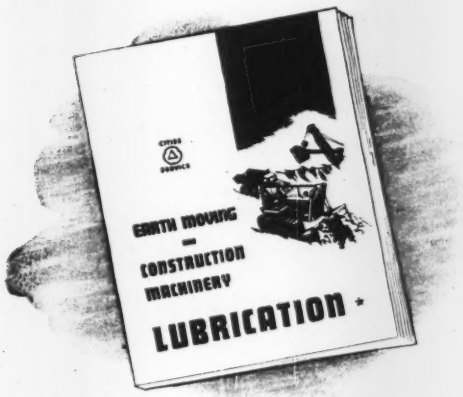

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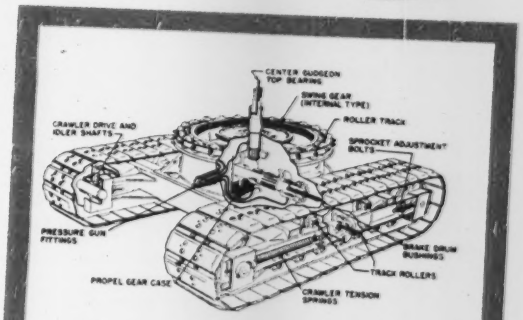
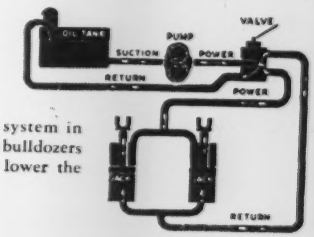


"FIG. 23

Shows internal type open gears of swing rack and one method of lubricating trunion and other shaft bearings... The 'propel' gears are enclosed and oil lubricated. The crawler track and other parts lubricated through pressure gun fittings require grease. See lubrication chart for proper type and grade..."



"FIG. 33

Hydraulic system in use on some bulldozers to raise or lower the blade."

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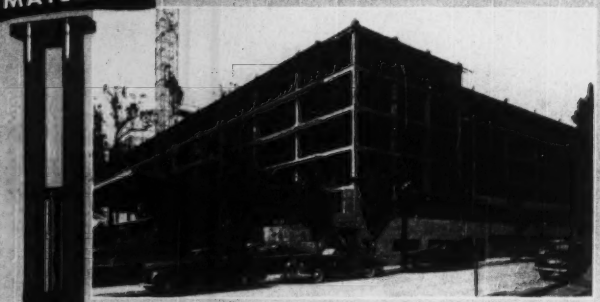

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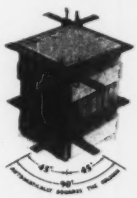

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OBITUARY

Leo Ranney, 66, a mining engineer who devised horizontal techniques for obtaining water from the ground, died at Morro Bay, Calif., Sept. 15. His well-known water collector consists of a caisson-like arrangement with radial collecting pipes. It is a method of drilling controlled horizontal holes in the ground for great distances. Mr. Ranney was a 1905 graduate of Iowa State Teachers College and in 1911 took a degree in geology at Northwestern University. He also took engineering courses at Columbia and began practice as a consulting engineer in 1914.

David R. Herbertson, a civil engineer with the U. S. Engineers for 43 years, died at Jacksonville, Fla., Sept. 7.

Marshall B. Atkinson, 69, one of Canada's best-known bridge engineers, died at St. Catharines, Ont., Sept. 4. Formerly with the Dominion Bridge Co., Montreal, he had been retired since 1947. He had worked with the Canadian government on bridge construction, including work at the Welland Canal. He was a graduate of McGill University, Montreal.

Roy G. Hafey, Stanton, Mich., superintendent of the Montcalm County Road Commission, died Sept. 1. He had been in charge of road building in the county for nine years, and previously was road construction contractor at Lakeview for 25 years.

Wallace R. Goss, 76, retired civil engineer, died Sept. 8 at Wheeling, W. Va. He was educated at the Citadel, Charleston, S. C., and later got a civil engineering degree at Lehigh University. He was superintendent of the municipal water plant at Shreveport, La., and during the first world war he was an engineer at Camp Beauregard, La. He was in charge of the construction of the power plant of the West Penn Power Co. at Power, W. Va.

John S. Haggerty, 84, Detroit, Mich., road builder and brick maker died Sept. 3. He was a pioneer of good roads in Michigan, having been an early builder of concrete roads. He was on the Wayne County Road Commission from its start in 1907 and was chairman until 1934.

Gratz B. Strickler, 80, a retired civil engineer and a former colonel in the Army reserve, died Sept. 11 at Washington, D. C. He took part in the building of the Panama Canal and in

(*Continued on page 63*)

Paving for the future—

For two years 53 NEBRASKA CITIES pave exclusively with CONCRETE

THE 53 cities shown above, representing nearly two-fifths of Nebraska's population, chose concrete for all new street construction during 1948 and 1949. Awards in 40 of the 53 cities were for more than 10,000 sq.yd. In specifying the pavement with a long future, these cities awarded contracts totaling as follows:

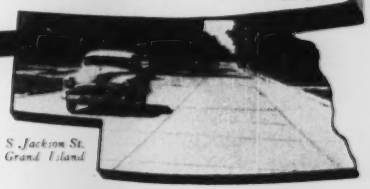
1948	**980,857 sq.yd.**
1949	**902,106 sq.yd.**
Total	**1,882,963 sq.yd.**

This overwhelming preference demonstrates a statewide recognition by Nebraska civic officials that concrete pavement gives motorists and taxpayers the best value for their money.

In other states hundreds of equally progressive cities are also building concrete streets which serve economically year after year. That's because concrete pavement: (1) usually costs less to build than other pavements of equal load-carrying capacity for all but the lighter traffic, (2) costs much less to maintain and (3) lasts longer. These three factors result in ***low annual cost.***

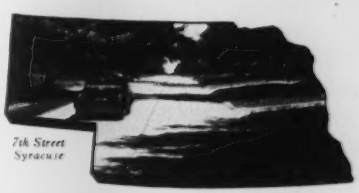
Then, too, concrete streets are safer. Day or night, wet or dry, their gritty surface has uniformly high skid resistance. Concrete's light color also provides maximum visibility at night, thereby reducing both accidents and lighting costs.

For more information write for free copy of 78-page *"Concrete Pavement Manual,"* distributed only in the U. S. and Canada.


S. Jackson St. Grand Island

B Street North Platte

E. 2nd Street Ogallala


7th Street Syracuse

PORTLAND CEMENT ASSOCIATION

DEPT. 9d-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Split Half a Second into Sixteen Parts . . . *and you get a sensational improvement in blasting methods!*

Here's a picture that shows WHY the ROCKMASTER Blasting System pays off! Notice the rock in motion. And yet the explosive gases are held within the burden. No spectacular "spouts" of gas going to waste. Result: Greater explosives efficiency, better fragmentation, less vibration, greater safety.

In a ROCKMASTER blast, holes are electrically fired at controlled split-second intervals. The timing is in each electric blasting cap. The ROCKMASTER "16" series offers you a choice of sixteen millisecond delay detonators, all starting together, all firing at timed intervals in a little over half a second!

For rock, coal, ore—on the surface or underground

Your job may call for two, three or all sixteen ROCKMASTER detonators. We help you select them to fit your job. Drill pattern and explosives are based on what you want to accomplish. Many times, this means important savings in drilling and dynamite.

Write for your copy of the booklet on the ROCKMASTER "16" Blasting System. It includes diagrams for loading in quarrying, stripping, mining, construction.

Less Bark *More Bite*

ROCKMASTER "16" TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

ROCKMASTER Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES *"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

the construction of bridges in Cuba. In World War I he served as a lieutenant colonel in the Quartermaster Corps, and later became a colonel in the reserves.

Nilsson M. Finkbiner, 62, laboratory and research engineer for the Oregon State Highway Department for 29 years, died at Salem, Ore., Sept. 3. For many years he was a member of the committee on materials of the American Association of State Highway Officials. Before joining the state highway department he was with the engineering department of Portland, Ore.

Max Stern, 66, regional information manager at Sacramento, Calif., for the Bureau of Reclamation, died Aug. 26 while vacationing at Echo Lake, Calif.

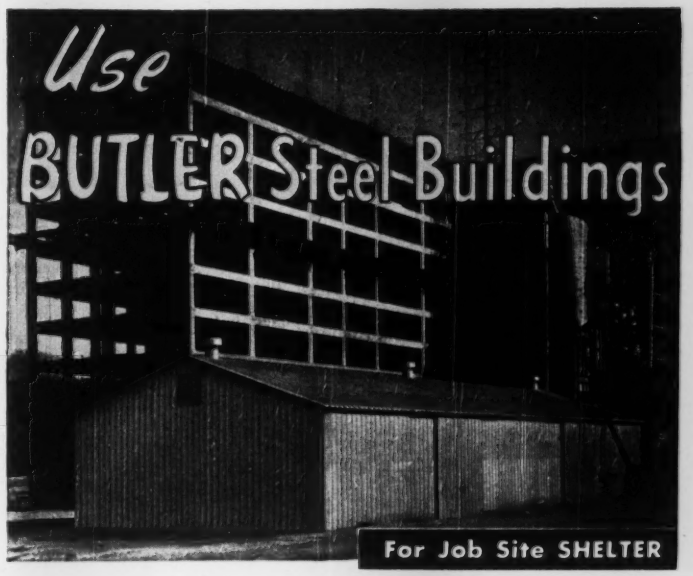
Charles Edward Feltner, 44, a professor in the Department of Engineering Mechanics of the North Carolina State College of Engineering School, Raleigh, N. C., and research director of the Clay Products Research Institute, Inc., Raleigh, died Sept. 11. He obtained his B. S. degree in civil engineering from Virginia Polytechnic Institute and his M. S. degree in civil engineering from the University of North Carolina, and had been a member of the N. C. State College faculty since 1935. Prior to that he had held engineering posts with Stone and Webster on a construction job at Hopewell, Va., with the Curtiss Aeroplane and Motor Co., Garden City, N. Y., and with the North Carolina State Department of Conservation and Development. He served in the Army from 1941 to 1945, and was discharged with the rank of captain.

Former road commissioners support Texas wage law

Six former Texas highway commissioners have joined in an appeal to the Texas Supreme Court to uphold the state "prevailing wage" plan on road-building.

The Austin appeals court had held that El Paso Building and Construction Trades Council had a legal right to bring suit to determine if the Highway Commission's prevailing wage scale equals wage scales in the area. El Paso ranks with Dallas and other counties where the department's schedule of wages are highest.

A multi-million dollar highway improvement through El Paso is being delayed by the suit over wages to be paid building the last section.



A 40'x100' Butler Building used by Patti Construction Company as job site shelter. Project is huge Twin Oaks apartment building installation in Kansas City.

For Your Client

Masonry front, display windows of Visalia, California, pump repair shop show adaptability of Butler Buildings in meeting clients' special needs.

Butler structurals and aluminum roof were combined with masonry front and sidewalls for this attractive implement dealer installation at Great Bend, Kansas.

Yes . . . Butler Buildings provide the low cost answer to your job site shelter needs and for your *permanent* quarters. Recommend Butler Buildings to your clients . . . for more profits to you. Butler Buildings are fire-safe . . . weathertight . . . and easily adapted to practically every building need. They're structurally strong, for longer life service. Ready for use in days instead of weeks. Available in a wide range of widths . . . 20′, 24′, 28′, 32′, 36′, 40′, 48′, 50′ and on up.

It will pay you to get acquainted with your local Butler distributor.

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BUTLER MANUFACTURING COMPANY

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Galesburg, Ill.
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MAIL THIS COUPON TODAY!

For Prompt Reply, Address Dept. NR29 at Office nearest You:
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Richmond, Calif.

☐ *Send information on Butler Steel Buildings for use as job site shelters.*

☐ *Tell me how I can profit by adapting Butler Buildings for customers' use.*

Name.....

Firm.....

Address.....

City.....Zone.....State.....

"We do more work per day ...more days per year"

"When other trucks must stay at home.. our FWDs are on the job as usual"

"and my FWD delivers the load where it is needed . . . on its own"

"When construction work ends, our FWDs go on jobs like snow plowing... they pay out year 'round"

"We've found that an FWD has up to twice the life . . ."

The big swing to FWD in construction work is due mainly to the need for extra traction and proper distribution of load and power. You see, the buyer of an FWD gets *much more than a truck!* He also buys the ability to work every day — to spot materials wherever needed — to do jobs other than hauling — and to cut upkeep costs. Not only does his FWD do *more per day* — but it also performs through *more years!*

GET FULL FACTS on the entire team of FWD's. Models now range from 14,500 to 60,000 G.V.W. 4- and 6-wheel-drives. Ask for the free FWD Model Book.

See your FWD distributor or Write FWD
THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wis. • *Canadian Factory:* Kitchener, Ont.
World-Wide Sales and Service

America's Foremost Heavy-Duty Truck

ELECTIONS AND ACTIVITIES

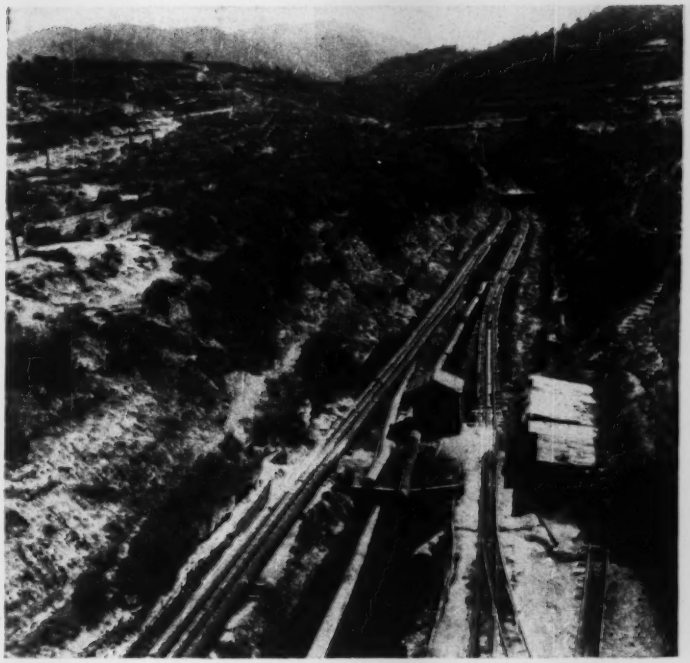
R. D. Beam of Raleigh, N. C., has been appointed to the North Carolina State Licensing Board for Contractors to fill a vacancy caused by the death of W. H. Anderson of Asheville. A former member and former chairman of the board, he was named to fill out Anderson's unexpired term, which ends Dec. 31, 1954. He obtained his civil engineering degree from North Carolina State College.

At the recent annual convention of the Minnesota Section of the American Water Works Association in St. Paul, R. M. Jenson of Grand Forks, N. D., was elected chairman of the section which includes also North and South Dakota and Winnipeg. Rhea Rees of Sioux Falls, S. D., was elected vice chairman and Leonard N. Johnson, general manager of the St. Paul City Waterworks, was made secretary-treasurer.

Charles W. Kern, Indianapolis, president of the Indiana Building Trades Council since 1920, has been re-elected to that post for the coming year. J. L. Mears, South Bend, was elected secretary - treasurer; Oscar Burch, Gary, first vice-president; and Dustin McDonald, Bloomington, second vice-president.

New appointtments to the North Carolina Building Code Council have been announced by Governor Kerr Scott. They are: Bernard Crocker, Jr., Raleigh structural engineer, who succeeds Ross Shumaker, also of Raleigh; W. Price Hand, Belmont contractor, who succeeds Robert H. Pinnix of Gastonia; George Robb, High Point plumbing and heating contractor, who succeeds J. W. Warr of Hamlet, and Albert Haskins, Raleigh architect, who succeeds Walter W. Cook of Charlotte. Reappointed to the council was I. H. Rouse of Wilmington. All appointments were for terms expiring April 18, 1955.

"Parking and Parking Meters" was the topic of a paper delivered by F. M. Galloway of Montclair, N. J., at the recent meeting of the N. Y.-N. J. chapter of the American Public Works Association at Rye, N. Y. Officers of the chapter for the year are:



NAYLOR PIPE PUTS A RIVER "IN ITS PLACE"

When a river gets out of bounds and seepage interferes with tunnel construction, it's time to put Naylor Pipe to work.

The picture shows how contractors in the mountains of Mexico are using this distinctive light-weight pipe to rid the tunnel of water and keep the river where it belongs.

Whether you need water lines, air lines, ventilating lines, cement pumping pipe, dredging lines or other applications, it will pay you to take advantage of Naylor—the light-weight pipe with the heavy-weight performance.

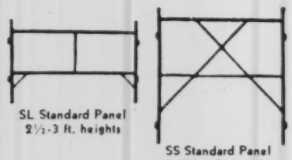
Sizes from 4" to 30" in diameter with all types of fittings and connections.
Write for catalog No. 44.

NAYLOR PIPE COMPANY
1248 East 92nd Street, Chicago 19, Illinois
New York Office: 350 Madison Avenue, New York 17, N. Y.

Ezebilt

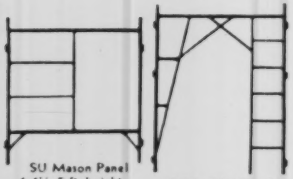
The Preferred SCAFFOLDING assembly

Ezebilt Mason Panel—used with brackets quickly erects to any height—provides a convenient materials-handling area.



SL Standard Panel 2½-3 ft. heights

SS Standard Panel 4-4½-5 ft. heights



SU Mason Panel 4-4½-5 ft. heights

SH Ladder Panel 6½ ft. high

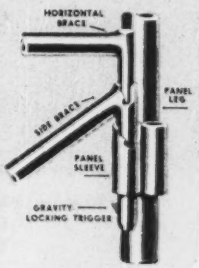
PSW Putlogs—up to 22¼ ft. span

Above are sketched just a few of the many basic Ezebilt parts — all interchangeable — all assembled with no bolts, no wing nuts, no loose parts.

"Up Faster—no bolts to master"

To erect a scaffolding without losing time working with or looking for loose parts—specify Universal Ezebilt. Everything necessary for assembling the different panels, stringers, and braces is contained right in the "Gravity Lock" . . . just put the units into position and the scaffolding virtually assembles itself.

Note in the Diagram how easy and fast an Ezebilt installation can be made. In the simple "Gravity Lock" design, the side braces and horizontal braces are attached to the panel legs . . . no nuts, bolts, or tools required.



Send for name of nearest distributor—or write for new Ezebilt Catalog

UNIVERSAL MANUFACTURING CORP.
200 NORTH STREET · ZELIENOPLE (Pgh. District) PA.

EZEBILT Tubular Steel Panel Scaffolding, LADSCAF Lightweight Scaffolding, Elevating Towers, Rolling Maintenance Towers, Portable Steel Bleachers, Agricultural Equipment, Endak Clamp-Type Scaffolding.

President, E. P. Decher, secretary and purchasing agent of the Joint Sewer Commission, Elizabeth, N. J.; vice-president, Ray Murphy, city engineer, Rye, N. Y.; secretary-treasurer, Wm. Foster, American City Magazine; executive committee, E. Arthur Bell, Wellington Donaldson, and Andrew Eschenfelder.

CALENDAR

Pacific Coast Building Officials Conference, Manor Hotel, San Diego, Calif., Oct. 3-6.

National Council of State Boards of Engineering Examiners, Congress Hotel, Chicago, Ill., Oct. 9-11.

Federation of Sewage Works Associations, Hotel Statler, Washington, D. C., Oct. 9-12.

American Society of Civil Engineers, fall meeting, Congress Hotel, Chicago, Ill., Oct. 11-14.

Virginia Highway Conference, VMI, Lexington, Va., Oct. 12-13.

Structural Engineers' Association of California, Hotel Del Coronado, Coronado, Calif., Oct. 12-14.

S. W. section AWWA, Roosevelt Hotel, New Orleans, La., Oct. 15-18.

Public Works Congress and Equipment Show, 9th Regiment Armory, New York City, Oct. 15-18.

Water conference, Engineers' Society of Western Pennsylvania, Hotel William Penn, Pittsburgh, Pa., Oct. 16-18.

National Association of Housing Officials, Detroit, Mich., Oct. 16-19.

Construction section, National Safety Congress, Stevens Hotel, Chicago, Ill., Oct. 17-18.

National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Ill., Oct. 18-19.

Pennsylvania section, AWWA, Roosevelt Hotel, Pittsburgh, Pa., Oct. 18-20.

Engineers' Council for Professional Development, Tudor Arms Hotel, Cleveland, Ohio, Oct. 20-21.

National Public Health Engineering Conference, University of Florida, Gainsville, Oct. 23.

Structural Clay Products Industry, Broadmoor Hotel, Colorado Springs, Colo., Oct. 23-26.

American Institute of Steel Construction, Shamrock Hotel, Houston, Tex., Oct. 23-26.

American Concrete Institute, Mayflower Hotel, Washington, D. C., Oct. 24-26.

California section, AWWA, U. S. Grant Hotel, San Diego, Calif., Oct. 24-27.

Carolinas Branch, A.G.C., White Sulphur Springs, W. Va., Oct. 30-31.

Chesapeake section, American Water Works Association, DuPont Hotel, Wilmington, Del., Nov. 1-3.

Florida and Cuban sections, American Water Works Association, Ft. Lauderdale, Fla., Nov. 13-15.

National Reclamation Association, Hotel Davenport, Spokane, Wash., Nov. 15-17.

The Amazing BARCO PEGSON RAMMER

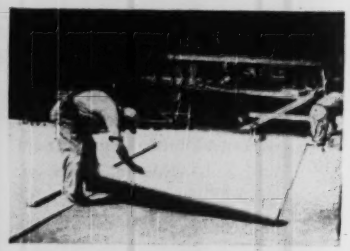
for soil compaction close to walls, culverts, abutments and in narrow ditches

On backfill tamping jobs even in narrow trenches, the Barco Rammer has no equal. You save the cost of removing excavated material and replacing with sand. More important, you replace the soil to adequate compactness and avoid settlement troubles. This efficient Barco Rammer gets in the hard-to-reach areas where rollers can't be used. It is simple to operate and requires no special operators. Always ready to work, its simple design and sturdy construction practically eliminate repair and maintenance costs. For more information, write Barco Manufacturing Company, 1814J Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal.

BARCO GASOLINE RAMMER

FREE ENTERPRISE — THE CORNERSTONE OF AMERICAN PROSPERITY

FOR MAXIMUM PROTECTION AT MINIMUM COST Use SISALKRAFT



CLEAN, DUST-FREE FLOORS *at reduced cost*

IT'S STRONG: SISALKRAFT is so strong it furnishes positive protection from construction debris, and prevents marring and construction stains. Its strength makes it ideal for many "closing-in" operations, too.

IT'S LIGHT-WEIGHT: SISALKRAFT is so light and convenient to handle that it can be rolled into place easily and removed quickly. Can be re-rolled in most cases, and re-used many times over.

IT'S AUTOMATIC CURING: The SISALKRAFT Method of curing and protecting concrete is automatic . . . no watching, no sprinkling, no other covering required.

IT'S A "NATURAL" FOR YOU on single-story and multi-story jobs . . . also for curing and protecting driveways, sidewalks, foundations, roads and other concrete slab work or masonry.

MAIL COUPON FOR FREE SAMPLE

The SISALKRAFT Co., Dept. ENR-9
205 W. Wacker Drive, Chicago 6, Ill.
Please send free SISALKRAFT samples and information.

Name

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THE SISALKRAFT CO.
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UNIT PRICES BID BY CONTRACTORS

Gravel roads for Idaho reactor testing station

Included in bids taken by the Atomic Energy Commission on the $135,273 road construction job near Idaho Falls, Idaho, were unit price bids on use of equipment. Seven bids, more than 103% apart, were submitted July 25, 1950, with the low 11.6% below the second low.

The contractor must furnish all materials and equipment for constructing and surfacing about 10 miles of road and surfacing 4 miles of existing road within the U. S. Atomic Energy Commission's Idaho reactor testing station, near Twin Buttes. The new road will lead to various reactors and to a chemical processing plant. The roads to be surfaced are a trunk line and an access road to reactors.

Wages to be paid skilled labor are $2.10 an hour; semi-skilled, $1.85; common, $1.50. Bidders on the job were:

1 Morrison-Knudsen Company, Inc., Boise, Idaho	$135,273.50
2 Hash Contracting Co., Livingston, Montana	150,963.75
3 Carl E. Nelson Co., Logan, Utah	157,676.50
4 Pickett & Nelson, Idaho Falls	171,088.50
5 Holmes Construction Company, Heyburn, Idaho	178,796.63
6 Gibbons & Reed, Salt Lake City	189,924.00
7 Stanley Arkwright, Billings, Mont.	275,371.00

Items	Quantity	Unit prices 1	2
Clear & grub. . . . . ac	90	$45.00	$42.50
Und excav . . . . . cy	44,900	.30	.34
Excav for struct . . . . cy	2,250	.30	2.10
Watering . . . . . Mgal	5,050	2.00	1.80
Power roller . . . . . day	48	40.00	85.00
Tamping roller . . . . . day	133	40.00	70.00
Pneu tired roller . . . . . day	15	40.00	65.00
Borrow . . . . . cy	29,500	.25	.24
Haul . . . . . cymi	2,200	.20	.12
Grav base course . . . . . T	78,500	.45	.48
Grav surf course . . . . . T	30,200	.50	.60
Binder . . . . . cy	3,200	.25	.15
Liquid asph			
Prime MC-1 . . . . . gal	90,600	.15	.16
Seal MC-5 . . . . . gal	90,600	.16	.17
Cover coat (L.H.P.) . . . T	3,535	2.00	1.25
Corrug metal culv			
24", 14 gauge . . . . . lf	220	5.50	5.00
18", 16 gauge . . . . . lf	810	3.25	4.20
Plank RR cross . . . . . ea	4	250.00	250.00
Navy buoys, move . . . . . ea	50	2.00	5.00

Water meters, Michigan

Bids were taken August 28, 1950, on 2,080 water meters by the City of Hillsdale, Mich. Seven bidders were 5% apart. The contract was awarded to the fifth from low bidder as other meters of the company are in satisfactory service in Hillsdale. The contract bid was only 3% above low bid.

The meters will be straight gallon reading. About 300 meters will be delivered each month until May 1, 1951, when the city hopes to have Hillsdale completely metered. Bidders included:

1 Ellis & Ford, Ferndale	$33,993.60
2 Worthington Gamon, Newark	34,928.00
5 Badger Meter Co., Milwaukee, contract	35,028.50
7 Hersey Mfg. Co., Boston	35,735.60

Meters	Quantity	Unit prices 1	2	5 C
¾" x ¾" . . . . . ea	2,000	$15.58	$16.02	$16.07
1" . . . . . ea	50	23.54	24.14	24.16
1½" . . . . . ea	20	35.06	35.45	35.50
2" . . . . . ea	10	95.54	97.20	97.05

Rattlesnake Tunnel near Loveland, Colo.

Only one bid, at $1,294,313, of 11 submitted to the Bureau of Reclamation August 24, 1950, on construction of Rattlesnake Tunnel, Colo., was below the engineer's estimate. It was a scant 0.3% below the estimate, 2.4% below the second low bid and 22% below the high.

The tunnel is part of the Estes Park-Foothills power aqueduct, Colorado-Big Thompson Project. It will be about 1.66 miles long with 15-ft closed sections at each end. The job site is 13 miles west of Loveland, Colo., near the Pole Hill power plant and afterbay at Little Hell Canyon River.

The work includes tunnel excavation; open-cut excavation for the outlet portal, for an open transition and a channel; concrete lining of the tunnel; and construction of concrete structures including the closed sections in the tunnel, outlet portal headwall and an open transition. All materials, equipment and labor will be furnished by the contractor. The contractor must remove fences on the right-of-way, install temporary fencing and rebuild permanent fences when construction is completed. He must also provide his own access roads. There is a penalty of $200 for each day's delay over the 2 years allowed for construction.

Minimum wage rates prevailing on the job are: carpenters and cement finishers, $2.00 an hour; electricians, $2.41; ironworkers, $2.10; tunnel laborers, $1.35; concrete laborers, $1.45; powdermen, timbermen, miners, $1.60; power equipment operators, $1.45-$2.15; shifters, $1.90; and truck drivers, $1.40-$1.75.

Bidders include:

1 Gibbons & Reed, Salt Lake City	$1,294,312.50
2 G. L. Tarlton Contracting Co., St. Louis, Mo.	1,325,775.00
11 Lowdermilk Bros, Denver, Colo.	1,377,955.00
Engineer's estimate	1,297,730.00

Items	Quantity	Unit prices 1C	2
Excavation			
In open cut . . . . . cy	4,800	$1.90	$3.00
In tunnel . . . . . cy	35,700	21.50	22.60
Tunnel enlargemt . . . cy	100	50.00	22.60
Backfill . . . . . cy	50	5.00	1.00
Compact backfill . . . . cy	30	5.00	10.00
Perm st tunl supports . lb	450,000	.16	.11
Perm timbr in tunl . Mbm	195	270.00	150.00
Drill feeler or pilot holes ahead tunl excav . . . lf	800	.85	.30
Drill gr holes thru conc tunl lin'g . . . . . lf	800	.85	.50
Gr pipes & connect . . . lb	800	.75	1.00
Pressure groutg . . . . . cf	8,000	2.25	2.50
Conc in struct . . . . . cy	65	60.00	65.00
Conc in tunl lin'g . . . . cy	10,000	28.40	27.00
Reinf bars . . . . . lb	12,000	.10	.15
Metal water stop . . . . lb	130	.25	1.00
Cement . . . . . bbl	15,700	5.00	8.00

Save Time! Save Work! Save Money!

GREASE ON THE GO with ALEMITE

Field-proved equipment for faster, easier lubrication of your machinery —right on the job!

NEW DETACHABLE "DYN-O-MITE" GUN WEIGHS ONLY 2 LBS.!

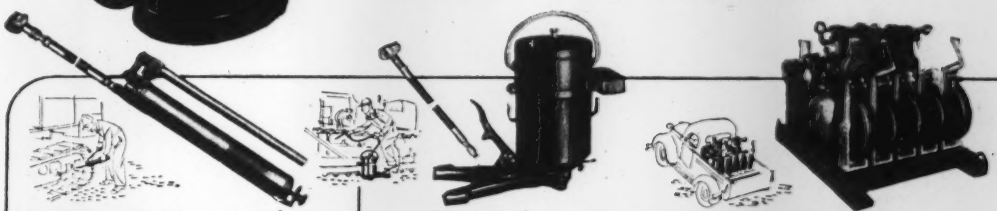
- **Builds 10,000 lbs. pressure with easy, one-hand operation!**
- **One-hand push action —No Squeeze!**
- **Refill in a jiffy—from "Red-A" bucket.**

When detached from hose, it gives you *one-man operation, all-pressure* lubrication, for any equipment, in *any* weather. Snaps onto "Red-A" Bucket hose for quick reloading. Extension reaches deep-set fittings. "DYN-O-MITE" gun only, Model 7132.

NEW PORTABLE "RED-A" BUCKET PUMP

- **Oval Shaped Bucket holds 27 lbs. of grease!**
- **Allows quick, volume delivery — direct from bucket to bearing.**
- **Up to 3,500 lbs. pressure with easy, one-hand operation!**

Allows rapid, on-the-spot greasing of any machine. Flexible 6-ft. hose withstands 12,000 lbs. pressure. Couples directly onto grease fittings, or snaps onto the "DYN-O-MITE" hand gun. Oval-shaped container won't bark your shins or wobble while you pump. Red "A" Bucket and Hose only, Model 7136.



Special Alemite Value

lever-type hand gun

- **Handles 21 full ounces of any type grease!**
- **Gives up to 6,000 lbs. pressure!**
- **Reaches fittings easily with hose and giant button head coupling!**

Easy to fill and operate, this lightweight, lever-type gun is popular throughout heavy industry. Built for rugged wear and trouble-free service. Has loader fitting for easy refilling without disassembly. Ask for Alemite Model 6679J. Hose Model 6829-A.

Real Work Saver

foot operated pump

- **Holds 25 lbs. of grease!**
- **5½ foot hose with giant button head coupling!**

Free use of both hands is allowed by easy foot-pedal pump action. Volume delivery —ideal for track roller and idler bearings. Ruggedly built for easier operation, longer service. It's Alemite Model 6697E. Hose Assembly Model 6615G extra.

Select Your Own

portable service station

- **You can custom build the rig you need.**
- **Get complete lubrication service—in the field!**
- **Apply oil or grease direct from barrel-to-bearing.**

New s-e-c-t-i-o-n-a-l-i-z-e-d platform units allow just the pumps, reels and hand-meters you require—assembled into one, portable rig for faster, easier lubrication—right on the job!

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Va., Charlottesville—B.A. 10/2—At office Dr. F. B. Stafford, Blue Ridge Sanatorium, Charlottesville, 300,000 gal. concrete fdn. and piping reservoir at Blue Ridge Sanatorium, for State of Virginia, Richmond. $35,000. Plans deposit $5.

LOW BIDDERS

Ky., Lawrenceburg—City, Sept. 12, water filter plant bldg. equip., etc., from Clark, Stewart & Wood Co., 326 Georgetown St., Lexington, **$119,000**; elevated water tank, from W. E. Caldwell Co., 200 E. Brandeis St., Lexington, **$34,680** on 150,000 gal. tank, or **$28,060** on 125,000 gal. tank.

Mich., Ishpeming—City, W. J. Brewer, City Hall, rejected bids Aug. 30, water sys., Contr. 4, fdns. for 500,000 gal. standpipe, rein.-con. 12 in. thick wall, 76 ft. diam. 2 to 7 ft. high sand fill, L. B. **$33,300**. CD 8/23.

Tex., Brownfield—City, Sept. 6, Div. 1 (A), well house, 500,000 gal. concrete ground storage reservoir, 1 booster pumping unit and Div. 2, 12,668 lin. ft. 6-to 10-in. c.i. water distr. lines and main, from Enix Constr. Co., Plainview, **$33,189** est. $40,000 and **$48,185** est. $55,000 respectively. CD 8/21.

† **Va., Woodbridge**—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., rejected bids Sept. 7, drilling well in vicinity of here, Eng 49-080-51-20 (20).

CONTRACTS AWARDED

Tex., Houston—Afton Oaks, 4007 Greenbriar St., water sys. Purchase and Hire. **$37,775**. J. B. Dannenbaum, 3940 Main St., engr.

Tex., Houston—Ira Brooks, Beaumont Hy., c.i. water lines, own forces. **$33,316**. Robert M. & E. S. Atkinson, 1st. Natl. Bank Bldg., engrs.

SEWERS, WASTE DISPOSAL

BIDS ASKED

O., Toledo—B.A. About 10/17—City, City Hall, Homeville District Storm Sewer 1673, approx. 7,000 lin. ft. 12- to 54-in. rein.-con. sewer pipe, $160,000; North Toledo Storm Sewer 1670, approx. 6,500 ft. 12- to 48-in. rein.-con. sewer pipe, $100,000. Plans deposit $10 each. H. A. Nelson, city storm sewer div. engr. CD 8/29, under LB.

N. J., Trenton—B.A. 10/30—Ewing-Lawrence Sewerage Auth., 156 W. State St., sewage treatment plant. Plans deposit $50. Extended date. Buck, Seifert & Jost, 112 E. 19 St., New York 3, N. Y. engrs. CD 8/7.

LOW BIDDERS

Tex., Brownfield—City, Sept. 6, Div. 2, 15,897 lin. ft. 6- to 15-in. sanitary sewer lines, appurtenances, from Enix Constr. Co., Plainview, **$74,419**. Est. $90,000. CD 8/21.

Wash., Seattle—Lake City Sewer Dist., c/o Parker & Hill, engrs., Smith Tower, Zone 4, Sept. 11, 4475 ft. 27 to 30 in. rein. north trunk sewer Unit 1 R, from Lundberg & Roberts, 3220 W. Republican St., $101,607. CD 1/26/49.

CONTRACTS AWARDED

Tex., Hearne—City, drainage, own forces. **$60,000**. Garrett Eng. Co., 5008 Alemeda Rd., Houston, engrs. CD 9/18/47.

Tex., Houston—Afton Oaks, 4007 Greenbriar St., sanitary sewers, Approx. **$55,000**; open and closed drainage, **$56,115**, Purchase and Hire. CD 8/31.

Tex., Houston—Ira Brooks, Beaumont Hy., sanitary and storm sewers, own forces. **$59,000**. Robert M. & E. S. Atkinson, 1st Natl. Bank Bldg., engrs.

BRIDGES

LOW BIDDERS

▲ **Calif., Los Angeles**—City Bd. P. Wks., City Hall, Sept. 13, subway under Los Angeles municipal airport, Sepulveda Blvd between Century and Imperial Blvds., 1910 ft. long two 36½ ft. spans, rein.-con., from Oberg Bros. Constr. Co., 401 W. Florence Ave., Inglewood, **$1,583,478**. CD 8/23.

CONTRACTS AWARDED

New Jersey—New Jersey Turnpike Auth., War Memorial Bldg., Trenton, construct substructures and superstructures of Secaucus Road underpass, the Paterson Plank Road overpass and Route 3 overpass, etc. Contr. 49, Hudson Co., to Ell-Dorer Contg. Co., 644 Nye Ave., Irvington, **$778,805**. Bids 9/7, awarded 9/15. CD 9/11, under LB.

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Zone 8, Contr. 22, excavation, furnishing, placing, compacting various graded borrow excavation materials in embankments; stabil. existing ground by use of vertical sand drains, excavating portions embankment placed as overload and depositing the materials excavated on embankments; excavating dump materials and disposing materials in designated dump disposal areas, paving relocated streets, etc., from Turnpike viaduct over railroads to Passaic River bridge, Essex Co., to Construction Aggregates Corp., and Peter Kiewit Sons Corp., 1 E. 42 St., New York, N. Y. **$6,581,635**. Bids 8/3. CD 8/9, under LB.

Que., Montreal—Canadian National Rys., B. Wheelwright, ch. engr., 360 McGill St., 2 story, 46x207 ft. rein.-con. viaduct to C. Duranceau, Ltd., 2535 Jacques Hertel, **$150,000**. Bids 8/22. CD 8/8.

STREETS AND ROADS

LOW BIDDERS

Michigan—State Hy. Comn., Lansing, Zone 13, Sept. 7, stabilized aggregate surf. mix 2.45 mi. Co. Road, Proj. CS 25-60 C-1 (S-411 6), Genesee Co., from Gould & Cross, 3849 3 Mile Rd., Grand Rapids, **$66,723****grading, drainage, surf. 4.02 mi., Co. Road, Proj. Cs 25-59 C-1 (S 635 1), Genesee Co., from W. H. Muehlenbeck, Saginaw, **$119,124****grading, drainage, surf. 4.249 mi. Proj. M 16-2 C-2 and C-3, M 16-27 C1 and M 71-4 C-3, Cheboygan and Presque Isle Counties, from Schworn & Meyers, Traverse City, **$175,028****c.-conc. 3.22 mi. Commerce Rd., Proj. CS 63-80 C-1 (S-640 11), Oakland Co., from Ann Arbor Constr. Co., Ann Arbor, **$67,989**. CD 8/31.

CONTRACTS AWARDED

Tex., Houston—Ira Brooks, Beaumont Hy., street constr. and asph. type paving, own forces. Approx. **$50,000**. Robert M. & E. S. Atkinson, 1st Natl. Bank Bldg., engrs.

EARTHWORK, WATERWAYS

BIDS ASKED

† **South Dakota**—B.A. On or About 10/4—U. S. Eng., 1709 Jackson St., Omaha, Neb., sealing an artesian well for Fort Randall Reservoir Proj. near Lake Andes, Charles Mix Co., Spec. No. CIVENG 25-066-51-30. CD 5/25/44.

† **Nebraska**—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Trenton, one lot embedded gate anchorages for three 42x30 ft. radial gates for Trenton Dam, Frenchman-Cambridge Div. Missouri River Basin Proj. Spec. 3182. CD 5/25/44.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). **For full calendar, see also preceding issues of ENR.**

LOW BIDDERS: On jobs below $500,000 **value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.**

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

LOW BIDDERS

La., Alexandria—Rapides Parish Police Jury, Sept. 12, 1,488,000 cu. yd. channel excav., from James P. Cross, New Iberia, **$183,768**. CD 8/31.

Pennsylvania—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 13, dam and lake on Hills Creek, Charleston Twp., Tioga Co., from H. T. Osburn & Co. Inc., 631 12 St., Franklin, **$261,550**. Est. $300,000. CD 8/28.

▲† **Washington**—Bureau Reclamation, Dpt. Interior, Coulee Dam, Sept. 7, river imprvs. and repair spillway face and spillway bucket, Spec. 3143, Columbia Basin Proj., Grand Coulee Dam, from Pacific Bridge Co., 333 Kearny St., San Francisco, Calif., **$2,662,866**. Est. $2,401,410. CD 8/30.

CONTRACTS AWARDED

† **Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, earthwork, structures for measuring devices for Fish Creek and Big Thompson River, Colorado-Big Thompson Proj., near Estes Park, Larimer Co., Spec. R7-137 (Region 7), to L. J. Hesser, Greeley, **$82,400**. Bids 8/24, awarded 9/7. CD 8/15.

La., New Orleans—Fourth Jefferson Drainage Dist., 648 Helios Ave., renovation Pumps 1, 3, and 4 on shores of Lake Pontchartrain, to John Riess, 806 Carondelet Bldg., **$752,350**. CD 9/14.

† **Oregon—Washington**-U.S. Eng., Pittock Block, Portland, Ore., 3 water surface gaging stations and 1 relay station bldg., Bonneville Pool, CIVENG 35-026-50-358, to General Constr. Co., 4850 N. W. Front St., Portland, Ore., **$52,806**. Est. $56,210. Bids 6/15, awarded 9/6. CD 5/10.

Tex., San Antonio—Billy Mitchell Village, Inc., Lackland Air Force Base, site grading, concrete curbs and gutters, hard paved drives, streets, to The Jarbet Co., Beacon Hill Station, Box 5067, **$67,716**. Frank T. Drought, 117 W. Pecan St., engr.

AIRPORTS

BIDS ASKED

Pa., Harrisburg—AIRPORT—B.A. 10/4—Dpt. Property & Supplies, 1400 N. 9 St., field lighting facilities in connection with enlargement Harrisburg State Airport, grading, drainage, paving, in construction approx. 1,300 ft. runway extension work and enlargement of field. Plans deposit $7.50 each. Michael Baker, Jr., Inc., Rochester, engr. CD 1/14/47.

LOW BIDDERS

N. C., Charlotte—AIRPORT—City, H. A. Yancey, mgr., Sept. 7, resurf., north and south, and northeast, southwest runways and north-south taxiway at Douglas Municipal Airport, from Blythe Bros., Box 989, Zone 1, **$129,975**. CD 3/26/47.

LATIN AMERICA

Venezuela, Maracaibo — Intercontinental Hotels Corp., 41 E. 42 St., New York 17, N. Y. U. S. A., 150 room I. H. C. Hotel Del Lago, to Taylor Constr. Co., 2875 N. W. 42 Ave., Miami, Fla., U. S. A. and the O. F. C. Constr. Co., Maracaibo, Approx. $2,500,000. Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., U. S. A., archts. CD 3/23.

PUBLIC BUILDINGS

BIDS ASKED

Mich., Dearborn—SCHOOL—B.A. 10/4—City, Richard Smith, secy., Dearborn School Dist., brick, steel, stone Clara Bryant Junior High School, Plans deposit $20 refundable. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth Sq., Detroit, Zone 1, archts.

Mich., Traverse City—PLANT—B.A. 10/4—State, A. N. Langius, dir. Bldg. Dpt., State Office Bldg., Lansing, brick, steel, concrete cold storage plant, service bldg., Traverse City State Hospital. Extended date. Shreve Walker & Assoc., 600 Woodward St., Detroit, archts. CD 8/9.

▲ **N. Y., Brooklyn**—SCHOOL—B.A. 10/4—Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for construction P. S. 273, Cozine Ave. from Jerome to Warwick Sts. **$1,424,000**. Plans deposit $9 general constr., $6 each for others. CD 1/17.

† **N. M., Los Alamos**—BUILDINGS—B.A. 10/10—U. S. Atomic Energy Comn., Los Alamos, 70x125 ft., concrete type bldg., and three 20x56 ft., same type bldgs., grading, site development, asph. paving, etc., Inv. No. 291-51-24. $400,000-$600,000. Plans deposit $25. Black & Veatch, c/o C. A. Slocomb, Los Alamos, engrs.

N. C., Chapel Hill—NURSES HOME, etc.—B.A. 10/19—University of North Carolina, W. D. Carmichael, controller, Gerrard Hall, nurses home and internes

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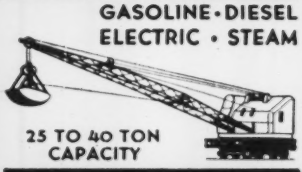

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quarters. Plans deposit $50. Northrup & O'Brien, 602 Reynolds Bldg., Winston-Salem, archts. CD 8/24.

N. C., Raleigh—THERAPY and INDUSTRY—B.A. 10/19—Bd. Control of North Carolina Hospitals, R. P. Pierce, bus. mgr., Raleigh, 2 story, 326,000 cu. ft recreational occupational therapy and industry bldg. Plans deposit $25 general contract, $10 mechanical work. McMinn & Norfleet, 233½ N. Green St., Greensboro, archts.

† Va., Fort Lee — BARRACKS — B.A. About 10/19—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., construct 225 man 50x26x6 ft. barracks, with connecting mess hall approx. 50x170 ft. concrete, brick masonry, Serial No. ENG-49-080-52-22 (22).

LOW BIDDERS

▲ Ky., Louisville—HOUSING—Municipal Housing Comm., Sept. 12, general contract and site clearing South Housing, from Grove, Shepherd, Wilson & Kruge, 247 Park Ave., New York N. Y., $7,550,000***plumbing and heating, from James E. Smith Co., 2438 Crittendon Dr., $1,351,684***electrical work, from Olive-Market Electrical Co., 1024 Logan St., $256,327. CD 8/29.

Mo., Gardenville (St. Louis 23, P. O.)—SCHOOL—Bayless Consolidated School Dist., 4530 Weber Rd., St. Louis, Zone 23, Aug. 29, 2 story, bsmnt., 60x120 ft., Bayless School addn., alterations, 4530 Weber Rd., from J. A. Prahl, 9840 Reavis Rd., Affton, St. Louis, Zone 23, $375,950. CD 8/17.

▲ Neb., Omaha—HOUSING—Omaha Housing Auth., 5520 S. 30 St., Sept. 12, housing, 30 and Spencer Sts. and at 30 and Lake Sts., from Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., $2,319,240 and $3,317,216 respectively. CD 8/7.

Okla., Norman — DORMITORY — Bd. Affairs, Capitol, Oklahoma City, Zone 5, rejected bids Sept. 12, employees dormitory at Central Oklahoma State Hospital. L. B. $679,265. Est. $488,000. CD 8/24.

Pa., State College—MECHANICAL ENGINEERING—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 13, general contract two wings as addns. to mechanical engineering bldg. at Pennsylvania State College, from Henry E. Baton, 1717 Sansom St., Phila., $483,000. CD 8/25.

Pa., Lock Haven—CLASSROOM—General State Auth., 18 and Herr Sts., Harrisburg, general contract classroom bldg. at Lock Haven State Teachers' College, from Tahone & Barbera, 186 N. Main St., Pittston, $353,600. CD 8/18.

Pa., Mansfield—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 13, general contract men's dormitory at Mansfield State Teachers College, from Boyd H. Kline, Berwick Rd., Bloomsburg, $337,016. CD 8/25.

Va., Charlottesville—POWER PLANT—State of Virginia, Richmond, Sept. 7, general contract power plant at University of Virginia, from Doyle & Russell, Central Natl. Bank Bldg., Third and Broad Sts., Richmond, $187,000. CD 8/3.

Va., Lynchburg—SCHOOL—State of Virginia, Richmond, Sept. 11, school at Lynchburg State Colony, from C. L. Lewis Co., Lynchburg, $646,592. CD 8/4.

CONTRACTS AWARDED

† Arizona and Nevada—SHOP—Bureau Reclamation, Dpt. Interior, Boulder City, Nev., concrete black-smith shop, altering lower Nevada and Arizona cableway landing platforms and paving highway tunnel at Hoover Dam, Boulder Canyon Proj., Spec. R3-B-16 (Region 3), to Lembke Constr. Co. 1927 Fremont St., Las Vegas, Nev. $106,141. Bids 8/17, awarded 8/31.

† Idaho, Arco—FIRE STATION—Atomic Energy Comm., Idaho Operations Office, Box 1221, Idaho Falls, 80x85 ft. masonry fire station; 50x140 ft. vehicle service bldg., one 30,000 gal., two 20,000 gal. and two 5,000 gal. fuel storage tanks in separate earth-diked areas, with pumphouse, carloading rack and foam fire protection sys. and 32x34 ft. masonry heating plant, to C. B. Lauch Constr. Co., 435 Ada St., Boise, $378,621. Ashton, Evans & Brazier, 24 S. W. Temple St., Salt Lake City, Utah, archts. Bids 8/25.

Mich., Ida—SCHOOL—Town Bd. Educ., brick, steel, Elementary Trade School, to Grant Lumber & Constr. Co., 1626 Ketchem St., Toledo, O., $310,400. Bids 8/22. CD 8/8.

Mich., Jackson—STORAGE—State, A. N. Langius, dir. Bldg., Dpt. State Office Bldg., 1 story, prefabricated steel storage bldg. for Southern Michigan State Prison, to North-Moller Co., Jackson, Approx. $68,000. CD 8/24.

Okla., Pauls Valley—ACUTE SERVICE—Bd. Affairs, Capitol, Oklahoma City, Zone 5, acute service bldg. at Pauls Valley State Hospital, to Walter Nassert Co., 16 N.E. 27 St., Oklahoma City, Zone 5, $430,549. Est. $420,000. Awarded 9/13. CD 3/31.

Okla., Talihina—HOSPITAL BLDGS.—Bd. Affairs, Capitol, Oklahoma City, Zone 5, 45 bed addn. to east ward bldg., new kitchen and dining hall at Eastern Oklahoma Tuberculosis Sanitorium and new wing for Eastern Oklahoma Tuberculosis Sanitorium, to John B. Martin Constr. Co., Commerce Exchange Bldg., Oklahoma City, Zone 2, $432,666 est. $423,050 and $411,689 est $405,206 respectively. CD 7/26.

Ore., Salem—TUBERCULOSIS UNIT—State Bd. Control, Capitol, 2 story part bsmnt., E-shaped, 150x430 ft. wings, 140 bed tuberculosis treatment unit at state hospital, to Vieskо & Post, Box 69, $561,569. Bids 8/18. CD 8/24, under LB.

Va., Suffolk—NURSING SCHOOL—Obici School of Nursing, Suffolk, Louis Obici School of Nursing, to Virginia Eng. Co., Newport News, $439,000. Baskerville & Son, 2313 W. Cary St., Richmond, archts.

Wash., Seattle—STUDENT UNION—University of Washington, Seattle, Zone 5, general contract student

union bldg. addn., to Henrik Valle Co., Inc., 407 3 Ave. W, $933,259. Bids 8/31. CD 8/7.

COMMERCIAL BUILDINGS

SOON LETS CONTRACT

Fla., St. Petersburg—CHURCH—First Avenue Methodist Church, 125 Fifth St. N., soon lets contract church, $300,000. Archie G. Parish & Robert B. Crowe, 213 Hall Bldg., archts. CD 8/17.

Ill., Chicago—STORE—Hillman Pure Foods Store, 1615 N. Harlem St., Zone 35, soon lets contract substructure, brick, concrete store, $500,000. A. Epstein & Sons Co., 2011 W. Pershing St., Zone 9, archts.

▲ **Ill., Chicago** — DEPARTMENT STORE — Sears Roebuck & Co., North Ave. at Harlem Ave., Zone 35, soon lets contract 1, 2, 3 story, brick, concrete, stone department store. $1,000,000. Carr & Wright, 333 N. Michigan St., Zone 1, archts. CD 9/8.

Kan., Shawnee—SCHOOL—St. Joseph's Parish, Shawnee, soon lets contract 2 story, bsmnt., 58x191 ft., brick, concrete frame high school. $200,000-$275,000. Shaughnessy & Bower, 3527 Broadway, Kansas City, Mo., archts. CD 7/28.

▲ **N. C., Durham**—DORMITORY—Duke University, Hollis Edens, pres., Administration Bldg., soon lets contract graduate men's dormitory. $1,000,000. Horace Trumbauer, 1511 Land Title Bldg., Phila., Pa., archt. CD 7/21.

LOW BIDDERS

Va., Richmond—HOSPITAL—Richmond Eye Hospital, Richmond, Sept. 7, hospital, from Doyle & Russell, Central Natl. Bank Bldg., Third and Broad Sts., $604,330. CD 8/8.

CONTRACTS AWARDED

Fla., Miami—HOMES—Greenfield Villages, c/o Henry Hohauser, archt., 4011 Chase Ave., Miami Beach, 200 homes, Owner builds, $500,000.

Ga., Milledgeville—CHURCH—First Baptist Church, c/o contractor, church, to A. C. Samford, Inc., Albany, approx. $300,000-$350,000. CD 9/12.

Ga., Savannah—HOMES—James L. Sundly, 409 W. Congress St., 64 homes, Owner builds, $300,000.

Ill., Chicago—FACULTY HOUSE—De Paul University, 2235 N. Sheffield St., Zone 14, 4 story, 70x130 ft., rein.-con., brick stone apartment faculty house to Wm. R. Ross Co., 435 N. Michigan St., Zone 11, $400,000. CD 9/7.

La., New Orleans—RESIDENCES—Edgar Doerr, 5431 Burgundy St., several residential developments, Owner builds, $250,000.

▲ **N. Y., Flushing**—APARTMENTS—Local 3, International Brotherhood of Electrical Workers, 130 E. 25 St., New York, 10, N. Y., 7 apartments, 383 units, Kissena Blvd., 164 St., 61 to 65th Aves., to Paul Tishman Co., Inc., 595 Madison Ave., New York, $3,500,000. First unit of $20,000,000 project. Benjamin Braunstein, 97-50 Queens Blvd., archt. CD 5/20/49.

Tenn., Memphis—HOMES—Parish Constr. Co., 1225 Columbian Mutual Tower, 41 homes in Barron Ave. sub-division. Owner builds. Approx. $500,000.

Tenn., Memphis—RESIDENCES—Richland Gardens, c/o contractor, residential development to Chandler & Chandler, Porter Bldg., $250,000.

▲ **Tex., Austin**—BANK, etc.—E. H. Perry Sr. & Assoc., c/o Central Building Co., Littlefield Bldg., 13 story, bsmnt. bank and office, to J. M. Odom, P. O. Box 774, $1,105,600. Est. $1,000,000. CD 9/14.

Tex., Houston—HOTEL—Shamrock Hotel, S. Main St., 2 story hotel addn. to Tellepsen Const. Co., 1710 Telephone Rd. $278,050. CD 9/11.

Tex., San Antonio—GROCERY, etc.—H. E. Butt Grocery Co., 600 Roslyn Ave., grocery and supermarket. Owner builds. Approx. $250,000. CD 8/31.

Tex., San Antonio—DWELLINGS—City Home Builders, Inc., 2024 N. St. Marys St., 15 dwellings. Owner builds. Approx. $350,000. CD 9/5.

Tex., San Antonio—APARTMENT—Rex Corp., 1230 N. St. Marys St., addnl. apartment units to C. L. Browning, Jr., 812 Travis Bldg., Approx. $286,000. CD 9/11.

Tex., San Antonio—DWELLINGS—Terry Thrift, Jr., c/o Thrift Lumber Co., 708 W. Summit St., 25 dwellings. Owner builds. $325,000. CD 9/5.

INDUSTRIAL BUILDINGS

BIDS ASKED

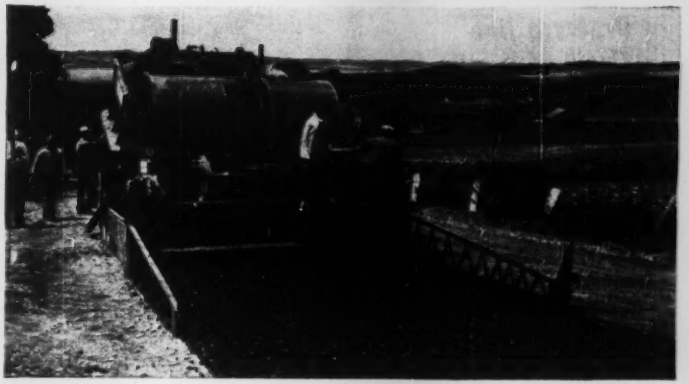
Que., Montreal—FACTORY—Bids Asked—Adamant Floor Co. Reg. 7948 Durocher St., 1 story, 25x70 ft. concrete, steel brick factory.

SOON LETS CONTRACT

Ill., Chicago—FACTORY—Columbia Tool Steel Co., 2100 W. Grand St., soon lets contract brick, concrete, steel, 12,800 sq. ft. factory. $100,000. A. Epstein & Sons Co., 2011 W. Pershing St., Zone 9, archts.

Ill., Joliet—FACTORY—Hart, Schaffner & Marx, Jackson and Scott St., soon lets contract 2 story, 75x155 ft., brick factory, $300,000. Holabird & Root & Burgee, 180 N. Wabash Ave., Chicago, Zone 1, archts.

Que., Chateauguay—STORAGE—Co-op de Pomiculteurs, Rene Primeau, pres., Chateauguay, soon lets contract 2 story, 85x85 ft. concrete, stucco apple storage. $146,000. B. Marchand, 9 Marchal Foch St., Quebec City, archt.



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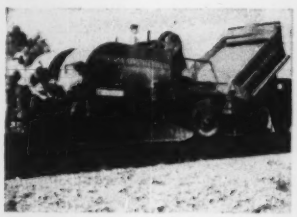

A Versatile, Flexible Machine

The *Moto-Paver* is a versatile, flexible machine. Aggregate may be dumped directly from trucks into the *Moto-Paver* hopper, as shown here, or picked up from a windrow by using an H & B Moto-Loader with the *Moto-Paver*.

The *Moto-Paver* makes road dollars go further, and do a better job, in less time. Especially on resurfacing and new construction on secondary roads and city streets. With the *Moto-Paver* a uniform, high quality bituminous mat is mixed and laid in one continuous operation. A smooth, waveless surface is produced, even when resurfacing over rough, irregular pavement. *No other machine or method produces comparable results at comparable costs.*

Moto-Paver uses beach sand, gravel, crushed stone or slag aggregates and various bituminous materials including tars, cutback asphalts, road oils and emulsions. Road speeds up to 25 miles per hour make it possible to move the *Moto-Paver* from one job to another in a minimum of time. Standard and heavy duty models for all kinds of operating conditions.

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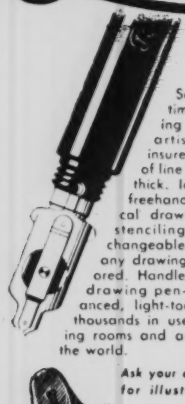

Saves thousands of time-wasting pen filling operations for the artist or draftsman — insures uniform thickness of line from hairline to 3/8" thick. Ideal for lettering, freehand drawing, technical drawing, sketching, or stenciling with the interchangeable nibs. Graphos uses any drawing ink, black or colored. Handles exactly like any drawing pen—beautifully balanced, light-touch. Time-tested — thousands in use in leading drafting rooms and art studios all over the world.

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LOW BIDDERS

N. C., Burlington—SALES and SERVICE—Spence Motor Co., Burlington, Sept. 8, auto sales and service bldg. alterations, addns. from H. F. Mitchell Constr. Co., Burlington, **$97,368.** CD 8/24.

CONTRACTS AWARDED

Calif., San Francisco—MARKETS—Bramwell Constr. Co., Div. Safeway Stores, 560 Mission St., two markets, to Midstate Constr. Co., 427 Bryant St., **$401,480.** Kaj. Theill, 580 Market St., engr.

Ga., Augusta—PLANT—Riverside Mills, c/o contractor, plant addn., to Claussen-Webster Constr. Co., Box 840, approx. **$68,000.**

Ill., Chicago—WAREHOUSE—E. I. Dupont de Nemours & Co., tessee, 2542-Elston Ave., Zone 47, brick, concrete, 18,000 sq. ft. process and warehouse, to H. N. Samuels, 165 W. Wacker Dr., Zone 1, **$100,000.** Awarded 9/6. J. O. Mitchell, 105 W. Adams St., Zone 3, archt.

Ill., Chicago—FACTORY—Fannie May Kitchen Candy Shops, 1137 W. Jackson St., Zone 7, 50x160 ft., brick, concrete factory top addn., to L. J. Graf Constr. Co., 700 N. Michigan St., Zone 11, **$96,000.** Awarded 9/8. Clarence L. Dahlquist, 430 N. Michigan St., Zone 11, archt.

Ill., Chicago—FACTORY—Trav-ler Radio Corp., 571 W. Jackson, Zone 6, 4 story, brick, rein. con. factory and office addn., to Goodwin Constr. Co., 320 S. Spaulding St., Zone 24. **$200,000.** Awarded 9/8. Albert W. Kirschenbaum, 53 W. Jackson St., Zone 4, archt. Jack A. Scanlon, 2323 Pioneer St., Evanston, engr.

La., Baton Rouge—BUS TERMINAL—Greyhound Bus Lines, c/o contractor, bus terminal, to Brice Bldg. Co., P. O. Box 128, Birmingham, Ala., approx. **$175,000.**

▲ **O., Cleveland**—OIL DISTILLATION PLANT—Standard Oil Co., Midland Bldg., crude oil distillation plant at its No. 1 refinery, to Arthur G. McKee & Co., 2300 Chester St. **$5,500,000.**

Ore., Portland—FREIGHT TERMINAL—Pierce Freight Lines, Inc., 1321 S. E. Water St., freight terminal, to Donald M. Drake, Lewis Bldg., **$275,000.** Awarded 9/11. Annand, Kennedy & Boone, Central Bldg., archts.

Tex., Fort Worth—WAREHOUSE—Bailey Realty Co., 600 Bailey St., addnl. warehouse. Owner builds. Approx. **$70,000.**

Tex., Grand Saline—PLANT—Morton Salt Co., Grand Saline, addnl. plant expansion, own forces. Approx. **$100,000.** CD 2/23/49.

Tex., Kyle—GRAIN ELEVATOR—Upland Grain & Lumber Co., c/o Ikey Wranitzky, Kyle, grain elevator, Purchase and Hire. Approx. **$77,000.**

Tex., Seminole—STORAGE and SERVICE—Southwestern Bell Telephone Co., Akard and Jackson St., Dallas, storage and service, to Gilstrap Constr. Co., Lubbock, **$96,500.** CD 9/8.

▲ **Ont., Toronto** — FACTORY — Frigidaire Products of Canada, Ltd., Warden and Pharmacy Aves., Scarborough, Toronto, substructure for 1 story, 450x1,000 ft. factory, and 2 story, 80x450 ft. office with auditorium seating 500 persons, structural steel, brick, to Redfern Constr. Co. Ltd., 88 Laird Dr., Leaside. Total **$7,000,000.** A. G. Facey, 991 Bay St., archt. R. P. Allsop & H. H. Angus & Assoc., 1221 Bay St., engrs. CD 8/18.

UNCLASSIFIED

BIDS ASKED

Tenn., Chattanooga—FIRE ALARM SYSTEM—B.A. 10/5—City, c/o P. L. Oglietti, City Hall, fire alarm sys., $500,000. Bids 6/15 rejected. CD 6/22 under LB.

Nebraska—RURAL DISTRIBUTION LINES—B.A. 10/17—Panhandle Rural Electric Membership Assn., Cecil Vickers, pres., Alliance, 323 mi. 24.9/14.4 kv transmission lines, Arthur, Grant and Cherry Counties. Raymond H. Read & Co., 2305½ 13 St. Columbus, engrs. CD 7/24.

† **Washington**—STRUCTURAL STEEL, etc.—B.A. 10/5—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. car shipping point or f.o.b. cars Odair, misc. structural steel and aluminum for Grand Coulee Dam, Columbia Basin Proj., Spec. 3157. L. N. McClellan, ch. engr.

† **Wyoming**—CONTROL BOARD—B.A. 10/24—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Casper, one control board for Alcova Switchyard, Transmission Div., Missouri River Basin Proj., Spec. 3183.

Puerto Rico, San Juan—WHARF—B.A. 10/24—Waterman Dock Co., Inc., and the Puerto Rico Transportation Auth., San Juan, at office E. M. Thyvaert, genl. mgr. Waterman Dock Co., Inc., Terminal Bldg., Box 3628, Zone 17, rein.-con. marginal wharf, concrete, steel transit shed, with concrete platform and paved street areas. Plans deposit $50. Irwin Eng. Corp., P. O. Box 361, Mobile 3, Ala., consult. engrs.

SOON LETS CONTRACT

Ohio—RURAL DISTRIBUTION LINES—Inter-County Rural Electric Co-operative, Inc., Charles Hill, mgr., Hillsboro, soon lets contract 20.42 mi. rural distr. line changes, 4.81 mi. new tie-line and 45 mi. membership extension. Bids 9/1 rejected. CD 8/21.

LOW BIDDERS

Calif., Napa—EXHIBIT—State Div. Architecture, P. Wks. Bldg., Sacramento, Sept. 12, 20,000 sq. ft. rein.-con. exhibit bldg. 3600 ft. floriculture bldg., rein.-con. steel, grandstand for 25th District Agriculture Assn., from Barrett & Hilp, 918 Harrison St., San Francisco, **$238,160.** CD 8/23.

Calif., Redwood City—SITE PREPARATIONS—Sequois Union High School Dist., Redwood City, Aug. 25, site utility piping for school from Harry E. Conner, 60 Center St., San Carlos, **$90,014.** CD 8/18.

Calif., San Francisco—PLAYGROUND—Recreation Comm. of City and San Francisco Co., Civic Auditorium Sept. 12, imprv. Grattan Playground, from Martinelli Constr. Co., 2580 Folsom St., **$153,200.** CD 8/23.

† **Idaho, Arco**—STORAGE TANKS—Atomic Energy Comm., Idaho Operations Office, Idaho Falls, Sept. 7, two 150,000 gal. elevated storage tanks, one of carbon steel the other stainless steel from Chicago Bridge & Iron Co., 332 S. Michigan St., Chicago, Ill. **$227,00.**

Nebraska — RURAL DISTRIBUTION LINES — Dawson County Public Power Dist., Lexington, Sept. 9, 130.25 mi. rural distr. lines, Lincoln Co., from Cater Electrical Constr. Co., 1016 Baltimore St., Kansas City, Mo. **$139,428.** CD 9/7.

Tenn., Harriman—GAS SYSTEM—City, natural gas sys., from Bush Building Co., 805 8 Ave. N., Nashville, **$439,135.**

CONTRACTS AWARDED

Calif., Redwood City—SITE PREPARATIONS—Sequois High School Dist., Redwood City, rough grading for school, to Frank W. Smith, 19 and Bayshore Sts., San Mateo, **$68,251.** Bids 8/25. CD 8/18.

Colorado—RURAL DISTRIBUTION LINES—K. C. Electric Assn., Burlington, 633.74 mi. rural distr. lines, Kit Carson Co., to Goins & Hon Constr. Co., Horton, **$661,624.** Bids 9/1. CD 8/18.

Kansas—RURAL DISTRIBUTION LINES—Victory Electric Co-operative, Dodge City, 150 mi. single phase rural distr. lines, 21 mi. conversions in Hodgeman, Finney, Gray, Ford, Edwards, Kiowa, Meade and Clark Counties. Proj. Kansas 48 Ford Sec. F, to B-Line Constr. Co., 520 First National Bank Bldg., Oklahoma City, Okla., **$150,758.** Est. $175,000. CD 8/13.

▲† **N. M., Los Alamos**—UTILITIES—U. S. Atomic Energy Comm., Los Alamos, utilities and related services, Area TA-16, Inv. No. 291-51-3, to E. C. Pritchett Co., 3200 Wheeler St., Houston, Tex., **$1,124,163.** Bids 9/6. CD 9/19, under LB.

† **Oregon**—CLEARING RIGHT-OF-WAY — Bonneville Power Admin., 827 N. E. Oregon St., Portland, clearing right-of-way in timber sale sections of Maupin-Detroit 230 kv transmission line, Inv. 5310, Marion Co., to R. & R. Constr. Co., Tillamook, **$323,230.** Bids 9/6. CD 8/24.

Oregon—TRACKAGE—Booth-Kelly Lumber Co., U. S. Bank Bldg., Portland, construc addnl. trackage for Oregon Pacific and Eastern R.R. sect., Lane Co., to Inter-City Sand & Gravel Co., Eugene, **$100,000.** Awarded 9/8.

W. Va., Montgomery—COAL LOADING DOCK—Central Appalachian Coal Co., c/o contractor, coal loading dock, etc., to Otavo Corp., Neville Island, Pittsburgh, Pa., Approx. **$68,000.**

Wis., Milwaukee—STRUCTURAL STEEL—Milwaukee Co. Park Comn., Court House, structural steel for stadium, to Milwaukee Bridge Co., 3282 N. 35 St., Zone 16, and to Worden-Allen Co., 410 N. 3 St., Zone 12, **$667,700.** Bids 9/7, awarded 9/13. CD 8/18.

Ont., Manotick—TRANSMITTER STATION—Govt. of Canada, Ottawa, transmitter station, to M. Sullivan & Son, Ltd., 234 Elgin St., Arnprior, **$220,000.** Bids 7/26. CD 7/10.

PROPOSED PROJECTS

WATER SUPPLY

Ky., Marion—City, water sys. imprvs. **$150,000.**

Mass., Berlin—Town, Bd. Selectmen, Town Hall water sys. $200,000-$250,000. Whitman & Howard, 89 Broad St., Boston, engr. CD 7/7.

Mass., Lowell—City, John J. Flannery, mgr., City Hall, gravel walled wells to increase water supply, **$127,000.** Whitman & Howard, 89 Broad St., Boston, consult. engrs.

O., Clarksville—Village, bond election Nov. 7, WW sys. $120,000.

Okla., Barnsdall—City, impounding reservoir water supply, $175,000. V. V. Long, Colcord Bldg., Oklahoma City, consult. engr.

Tex., Corpus Christi—Nueces County Water Control & Imprvt. Dist. 1, R. E. Ostrander, Betty Jean and Holly Rds., voted bonds, water distr. sys. $150,000. Alamo City Engineers, 3005 Transit Tower, San Antonio, consult. engrs. CD 8/21.

Wyo., Evanston—Town, defeated bonds, water sys. imprvs., incl. constr. new intake at pipe line 10 mi. southeast of here and installing pumps to obtain addnl. water for town. $100,000. CD 8/14.

SEWERS, WASTE DISPOSAL

Conn., Derby—City, mayors office, City Hall, plans by Frank Smith, 256 Main St., 3 story rein.-con., brick, concrete incinerator bldg. $110,000. George W. Thompson, 244 Main St., mech. engr. CD 9/1.

▲ **Ill., Joliet**—City, sewage treatment plant and connecting sewers, $1,800,000.

Ill., Minonk—City, sewage disposal sys. $300,000. CD 7/19/46.

(Continued on page 76)

TRUSCON Intermediate Projected STEEL WINDOWS

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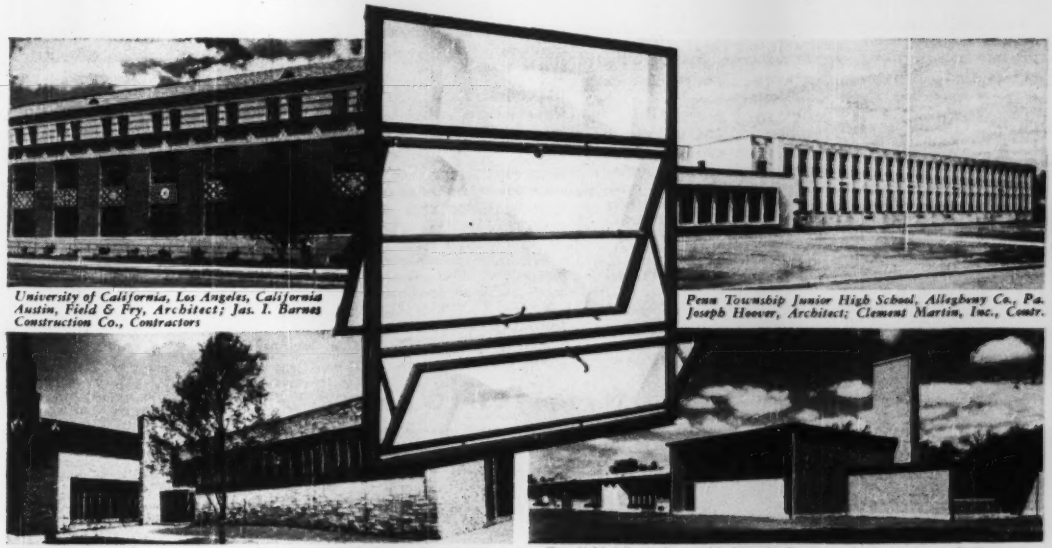

University of California, Los Angeles, California
Austin, Field & Fry, Architect; Jas. I. Barnes Construction Co., Contractors

Penn Township Junior High School, Allegheny Co., Pa.
Joseph Hoover, Architect; Clement Martin, Inc., Constr.

South Chicago Library, So. Chicago, Illinois; Paul Gerhardt, Jr., Architect
Charles B. Johnson & Sons, Contractor

Deerfield School, Deerfield, Illinois; Perkin & Will, Architect & Engineer
Cbell & Anderson, Contractor

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28 FOOT REACH:
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GRINDING:
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(Continued from page 74)

Ky., Barbourville—City, sewerage, WW and electrical distr. sys. $658,500.
Minn., Ellendale—Village, J. Arenson, clk., Ellendale, sanitary sewerage sys. and sewage treatment plant. $100,000. R. J. Ellison, 2384a S. Snelling Ave., St. Paul, consult. engr.
▲ O., Akron—City, City Hall, $5,000,000 bond election Nov. 7, storm and sanitary sewers. CD 12/10/43.
O., Bryan—City, $425,000 bond election Nov. 7, trunk line sewers. CD 11/25.
Okla., Ardmore—City, defeated bonds, sanitary sewer exten. $100,000. CD 8/29.
Ore., Springfield—City, City Hall, sewage disposal plant. $150,000. Dean E. Hodges, city engr.
Tex., Houston—Harris County Water Control & Imprvt. Dist. 24, Courthouse, sanitary sewers, $85,000; storm sewers, drainage, $60,000, 4,372 acre area, southwest of here.
Tex., Weslaco—City, voted bonds, major sewage treatment plant. $361,000. Sigler, Clark & Winston, Box 428, consult. engr. CD 8/30.
Wash., Tacoma—City, City Hall, South Tacoma Interceptor Sewer. $300,000. D. E. Morris, city engr. CD 11/20/44.

BRIDGES

Calif., Petaluma—City, City Hall, Washington St. Bridge, $145,000.
Mich., Coldwater—City Council, reconstruct 5 bridges over Coldwater River, Race, Jay, Clay, Sprague and Jefferson Sts. $100,000. R. A. Trebilcock, city engr.

STREETS AND ROADS

Calif., Petaluma—City, City Hall, truck route, $100,000.
Conn., New Canaan—Town, C. E. Costales, 1st selectman, street widn. Elm St. between Main St. and South Ave. $160,000.
▲ Delaware—State Hy. Dpt., Wilmington, Dover By Pass on U. S. Route 13, east of Dover. $1,000,000. M. Allan Wilson, c/o owner, ch. engr.
Okla., Ardmore—City, defeated bonds, access highways. $275,000. CD 8/29.
▲ Tenn., Nashville—City, City Hall, and State of Tennessee, Nashville, capitol hill redevelopment proj., 67 acres surrounding capitol hill, incl. 28 acres of developed and undeveloped property fringing the capitol property. $8,000,000. Clarke, Rapuano & Holleran, 145 E. 32 St., New York, N. Y., engrs. CD 4/17.
Tex., Texas City—City, voted bonds, street repairs, concrete curbs and gutters. $225,000. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr. CD 8/23.
Washington—State Hy. Dpt, Olympia,
Kitsap Co.—Imprv. 8 mi. access hys. to Agate Pass Bridge to Winslow on the south and Lofall on the north, $550,000.
† Wash., Arlington—Yards & Docks Annex, Navy Dpt., Arlington, Va., 12 mi. access road to Jim Creek Naval Communications Station, $247,000. CD 7/2/47, under Unclassified.

EARTHWORK, WATERWAYS

Calif., Petaluma—City, City Hall, retaining wall along Petaluma River, $100,000.
Ill., Aurora—City, City Hall, concrete dam in Fox River, $275,000. Walter E. Deuchler, 63 S. LaSalle St., consult. engr.
▲ Tex., Fort Worth—Tarrant County Water Control & Imprvt. Dist. 1, c/o Joe B. Hogsett, pres., Danciger Bldg., bond election Oct. 27, Program B, flood control imprvs. $7,000,000. Freese & Nichols, 407 Danciger Bldg., consult. engrs.
Tex., Texas City—City, voted bonds, drainage structures. $300,000. CD 8/23.
Ont., Erieau—Harwich Twp., G. L. Huffman, clk., Erieau flood control dyke to bridge gap in Burk Drain seawall. Approx. $200,000.

AIRPORTS

Ill., Belleville—AIRPORT—City, airport, $650,000.
Mich., Port Huron—AIRPORT—St. Clair Co. Comrs., plans by Charles M. Valentine, 448 Mitchell Rd., St. Clair, admin. bldg. at St. Clair Co. Airport. CD 11/1/44.
O., Chillicothe—AIRPORT—City, $350,000 bond election Nov. 7, municipal airport north of city, near Route 23. CD 1/10/45.

LATIN AMERICA

Mexico, Matamoras—Compania Mexicana de Television, S. A., c/o Manuel Leal, International Bldg., San Antonio, Tex., plans television station, incl. 560 ft. steel transmitter tower, $300,000.
Mexico, Mexico City—Dr. Mario Gonzalez Uthoa Tuxpan, 20, Mexico City, plans 14 story office-stores. $600,000.

Mexico, Mexico City—La Union S. A. (Lic Guillermo Arroyo) Independencia, 59, Mexico City, plans electrical appliances factory. $250,000.

Mexico, Mexico City—Peliculas Nacionales, S. de R. L., Insurgentes, 16-2, Mexico City, plans 8 story office-stores and cinema. $350,000.

Mexico, Mexico City—Solavite de Mexico, S de R.L. Anahuac, 57, Col. Roma Sur Mexico City, plans boiler cleansers factory. $250,000.

Mexico, Mexico City—Charles T. Wilson, c/o Lic. Alberto G. Salceda, 20 de Noviembre, 53-506, Mexico City, plans citronela essential oil factory. $250,000.

Mexico, Nuevo Laredo—Compania Mexicana de Television, S. A., c/o Manuel Leal, International Bldg., San Antonio, Tex., plans televison station. $200,000

PUBLIC BUILDINGS

▲ **Calif., North Sacramento**—SCHOOL—Grant Union High School Dist., 1429 Sonoma Ave., voted $1,700,000 bonds, school addns.

Calif., Stockton—SCHOOL—Montezuma School Dist., Stockton, plans by Mayo & Johnson, Exchange Bldg., frame, stucco Montezuma School, near here. $400,000. CD 4/1/48.

Ill., Jacksonville—SCHOOL—Bd. Educ., bond election Oct. 14, Franklin Grade School addn. $460,000; gymnasium for Jacksonville High School, $305,000. CD 7/19/44.

Md., Aberdeen—SCHOOL—Harford Co. School Bd., Courtland St., Belair, plans by Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, Aberdeen High School on 50 acre tract between Paradise Rd. and Baker St. off Bel Air Rd. $900,000. CD 2/2.

▲ **Md., Baltimore**—HOUSING—Housing Auth., 709 E. Eager St., plans by Jamison & Marcks, 8 E. Mulberry St., 2 story, bsmnt., masonry, 300 unit housing on 17 acre tract, off Sinclair Lane and Erdman Ave. adjoining Armistead Gardens. $2,500,000. J. Spence Howard, 307 Norris Bldg., civil engr. Whitman, Requardt & Assoc., 1304 St. Paul St., struct. and mech. engrs. Philip Darling, 709 E. Eager St., planning dir., housing auth. CD 5/21/45.

▲ **Mass., Andover**—SCHOOL—Town, Supt. Schools, plans by Tucker & Rich, 45 Newbury St., Boston, brick, steel, concrete school. $1,000,000. CD 9/1.

Mass., Chelmsford—SCHOOL—Town, Supt. Schools H. H. Jeffords, Town Hall, brick, steel concrete high school. $650,000. CD 11/18/49.

Mass., Gardner—SCHOOL—City, Supt. Schools, plans by Perley F. Gilbert Assoc., 53 Central St., Lowell, Junior High School Elementary wing. $500,000.

Mass., Lawrence—COURT HOUSE—Essex Co., Court House, Salem, plans by Michael T. Lipensky & Assoc., 113 Market St., Lynn, brick, steel concrete dist. court house, $500,000. CD 3/17/49.

Mass., Saugus—SCHOOL—Town School Dpt., 203 Winter St., plans by George H. Sidebottom, 200 Havin St., Reading, steel concrete, brick school, Hurd Ave. $400,000. CD 1/13.

Mich., Detroit—BUS TERMINAL—City, Detroit St. Railway Dpt., Leo J. Nowicki, genl. mgr., 11200 Shoemaker St., bus terminal garage Jefferson Ave. and St. Jean St. $500,000. CD 3/29/46.

† **Nev., Boulder City**—AUDITORIUM, etc.—Bureau Reclamation, Dpt. Interior, Boulder City, plans by Gordon B. Kaufman & J. E. Stanton, 627 S. Carondelet St., Los Angeles, Calif., auditorium and gymnasium addn. to high school. $750,000.

▲ **N. J., Newark**—HOUSING—Newark Housing Auth., 103 Boyden St., 1080 family housing, 11 bldgs. in area bounded by W. Springfield Ave., W. Kinney St., Belmont Ave. and 17 Avenue $8,000,000; 730 family housing, 7 bldgs. in area bounded by Ludlow St., Maschm, Dayton St. and Elizabeth City Line, $6,500,000; 630 family housing 12 bldgs. on site bounded by Grafton Ave., Erie R.R. Riverside Dr. and McCarter Hy., $5,000,000. CD 12/2.

▲ **N. Y., Tuckahoe**—SCHOOLS—Bd. Educ., Tuckahoe, elementary schools, $989,000; Waverly School addn., $251,000; Eastchester high school addn., $567,000.

▲ **N. C., Charlotte**—AUDITORIUM, etc.—City, City Hall, bond election Oct. 14, auditorium-coliseum, $3,000,000. CD 5/1/46.

▲ **O., Lancaster**—SCHOOLS—Bd. Educ., Lancaster, $2,300,000 bond election Nov. 7, 3 schools, enlarging existing bldg. and acquiring new athletic field. CD 2/24.

O., Sylvania—SCHOOL—Bd. Educ., Ira Baumgartner, supt., Sylvania, $750,000 bond election Nov. 7, 8 room and auditorium-gymnasium addns. to Maplewood School; Hillview School Whitford Rd. and Central Ave. School, W. Central Ave. CD 6/1.

Ore., Hood River—HIGH SCHOOL—Hood River School Dist., Courthouse, voted bonds, consolidated high school, $450,000. Annand, Kennedy & Boone, Central Bldg., Portland, archts.

▲ **Pa., Ambridge**—HOUSING—Beaver Co. Housing Auth., Box 181, Beaver, plans by Michael Baker, Jr. & Assoc., Baker Bldg., Rochester, two story 100 unit brick housing, 14 and 16 Sts. $1,000,000.

Pa., Braddock—HOUSING—Allegheny Co. Housing Auth., County Office Bldg., Pittsburgh, plans by Alexander, Sharon and Bowers & Barbalat, 534 Bakewell Bldg.,

(Continued on page 71)

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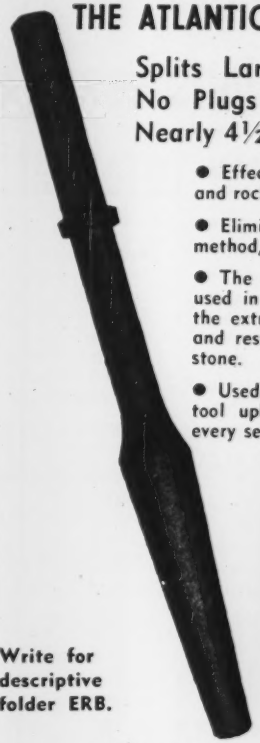

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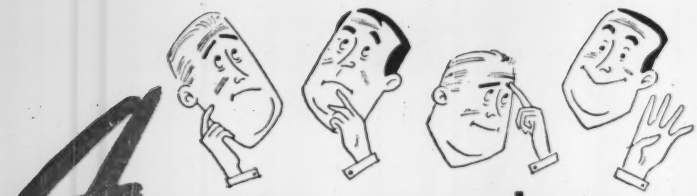

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INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO

(Continued from page 77)

Pittsburgh, 80 unit federal housing, Frazier St., Cemetery Lane. $900,000.

▲ **Pa., Clairton** — HOUSING — Allegheny Co. Housing Auth., County Office Bldg., Pittsburgh, plans by Celi & Flynn, 336 5 Ave., McKeesport, 130 unit housing. $1,250,000.

▲ **Pa., McKees Rocks**—HOUSING—Allegheny Co. Housing Auth., County Office Bldg., Pittsburgh, plans by Alex Sharove, 601 Berger Bldg., two 75 unit federal housing development. $1,500,000.

Pa., Midland — HOUSING — Beaver County Housing Auth., Box 181, Beaver, plans by J. E. & A. L. Martsolf, New Brighton, and Ackley, Bradley & Day, Sewickley, 53 unit brick housing. $530,000.

▲ **Pa., Uniontown**—HOUSING—Fayette County Housing Auth., Community Bldg., plans by Altman & Altman, 206 Derrick Ave., 150 unit housing. $1,050,000. CD 11/29/45.

Pa., Rankin — HOUSING — Pittsburgh Housing Auth., Auth., County Office Bldg., Pittsburgh, plans by Bowers & Barbalat, 534 Bakewell Bldg., Pittsburgh, 60 unit federal housing. $700,000.

Tex., Big Spring—WARD, etc.—State of Texas, c/o Bd. for State Hospitals & Special Schools, Austin, plans by C. K. Leighton, bd. archt., c/o owner, 250 bed ward bldg. units, $662,500; storage, bakery, laundry unit, $110,000. CD 12/9/48.

Tex., Huntsville — DORMITORIES, etc. — Sam Houston State Teachers College, Huntsville, men's dormitory, $300,000; womens dormitory, $300,000; gymnasium, $300,000. CD 8/8/49.

Tex., Mexia—DORMITORIES—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, Jr., superv. archt., 2504 Woodbridge Dr. Austin, and Wiltshire & Fisher, 4702 Rose St., Dallas, men's dormitory, $350,000; women's dormitory, $350,000.

Tex., Sweeney—SCHOOLS—Sweeney Independent School Dist., Sweeney, plans by Bartholome & Assoc., 3106 Brazos St., Houston, 27,000 sq. ft. brick, hollow tile, concrete, and steel elementary and high school for Negroes, $400,000; remodeling combination auditorium-gymnasium at Sweeney High School and converting into 600 seating auditorium and conversion primary school into other facilities, $250,000. CD 7/10.

Tex., Taylor—HOUSING—Taylor Housing Auth., Taylor, plans by Cameron Fairchild, 2626 Westheimer Rd., Houston, 70 unit low cost housing $612,500. Howard, Johnson & Kelly, Scanlan Bldg., Houston, consult. engrs. CD 11/14.

Tex., Temple—HIGH SCHOOL—Temple Independent School Dist., Temple, plans by Buttrill & Turley, Box 45, Temple, Junior-Senior High School. $475,000. H. B. Wells, 4215 Live Oak St., Dallas, consult. engr. CD 3/10/48.

N. B., Fairville (Postal Dist. Saint John)—SCHOOL—School Trustees, Fairville, plans by R. T. Steeves, Dpt. Education, Fredericton, school and gymnasium and auditorium. $400,000. CD 7/18.

COMMERCIAL BUILDINGS

Calif., Los Angeles — CLINIC — University of Southern California, 3551 University Ave., plans by Gordon B. Kaufmann & J. E. Stanton, 627 S. Carondelet St., 1st floor clinic of proposed 3 story dental bldg. $600,000. J. Raimond Johnson, 3551 University Ave., engr. CD 6/7.

▲ **Calif., Whittier**—DWELLING—Halper Constr. Corp., 739 N. Highland Ave., Los Angeles, plans by Herman Charles Light, 7551 Melrose Ave., Los Angeles, one hundred seventy-three frame, stucco dwellings in Tract 16683. $1,211,000.

Ill., Springfield—OFFICE—Franklin Life Insurance Co., 800 S. 6 St., plans by Harry J. Reiger, Security Bldg., 12 story, 60x80 ft., rein.-con., limestone office. $900,000.

Mass., Lexington—HOTEL APARTMENT—Reenstierna & Fletcher, c/o Arthur G. Manaselian & Assoc., archts., 30 Huntington Ave., Boston, plans completed thirty-four 2 story, bsmnt., garden court apartments and hotel, Russell Property, Massachusetts Ave. and Woburn St. $500,000.

▲ **Mass., Springfield**—HOSPITAL—Wesson Maternity Hospital, 120 High St., plans by Voorhees Walker, Foley & Smith, 101 Park Ave., New York, N. Y., 6 story maternity hospital Pratt St. $1,250,000. CD 9/6.

Minn., St. Paul—OFFICE—Minnesota Mutual Life Insurance Co., 156 E. 6 St., plans by Ellerbe & Co., E. 505 First Natl. Bank Bldg., addn. approx. 40,000 sq. ft. office bldg. addn. $500,000.

N. Y., Brooklyn—SYNAGOGUE, etc.—B'Nai Israel Synagogue Center of East Flatbush 1114-18 Clarkson Ave., Zone 12, plans by Jacob W. Sherman, 44 Court St., Zone 2, 1 story synagogue and school, 9517-37 Kings Hy. $275,000.

N. Y., Brooklyn—APARTMENT—550 East 21 St., Inc., 550 Flatbush Ave., Zone 25, plans by Philip Birnbaum, 12 E. 48 St., New York, Zone 17, 6 story apartment, 556 E.21 St. $450,000.

N. Y., New York—APARTMENT—Irving Maidman, 1501 Broadway, Zone 18, plans by William Shary & Son, 22 E. 17 St., Zone 3, apartment, 100 E. 25 St. $375,000.

N. Y., New York—APARTMENT—North Road Constr. Corp., 16 Court St., Brooklyn, Zone 2, plans by Melvin E. Kessler, 118 E. 28 St., Zone 16, 6 story apartment, Pelham Parkway between Cruger and Holland Aves. $480,000.

N. Y., Syracuse—APARTMENT—Skyline Apartments, c/o John H. Graham, archt., 2430 Penna Ave. N. W., Wash. D. C., 12 story, 200x200 ft., rein.con., cinder block apartment, 350 units and 6 stores.

O., Gallipolis—HOSPITAL—Bd. Trustees, Holzer Hospital, Gallipolis, expan hospital. $500,000.

▲ **O., Youngstown**—LIBRARY—Youngstown College, Wick Ave., plans by Kling & Frost, 661 Wick Ave., 2½ story, 85x150 ft. college library. $1,044,000. CD 12/12/49.

O., Youngstown—COMMUNITY CENTER—Jewish Federation, 646 Bryson St., plans by Morris W. Scheibel, 1301 Realty Bldg., community center, Wick Ave. $550,000. CD 8/18.

▲ **Pa., Pittsburgh**—APARTMENTS—Cloverleaf Apartments, Inc., Box 472, Latrobe, plans by Tennyson & Van Wart, Washington Rd., Mt. Lebanon, Pittsburgh, one bldg., 6 story, bsmnt., 70x165 ft. brick, block apartment, four 2 story, bsmnt., 55x104 and 70x120 ft. steel frame apartments, Baldwin Twp. near here. $1,000,000.

Pa., Pittsburgh—CHURCH—Corpus Christi Roman Catholic Church, 1550 Lincoln Ave., plans by C. J. Pelligrini, 6437 Monitor St., 1 story, bsmnt., brick, stone church and rectory. $400,000.

Pa., Pittsburgh—OFFICE, etc.—Herbert Grossman & Assoc., Hotel Schenley, plans by Harry Lefkowitz, 504 Standard Life Bldg., 6 story, bsmnt., 120x127 ft. brick, granite, steel office, shops, apartment, 5 Ave.-Oakland Dist. $500,000.

Tex., Houston—DWELLINGS—James C. Breaker, 3372 Del Monte St., 57 frame dwellings, concrete slab fdn. in area of Whitney Pl. west of Airline R. $425,000.

Tex., Houston—DUPLEXES—Robertson Building Co., c/o W. E. Robertson, 1537 Gardenia St., duplexes for Negroes, in an area adjacent to Chocolate Bayou Rd., near here. $325,000.

Tex., Houston—DWELLINGS—Scott Housing Corp., 5305 Blythewood St., plans by Knostman & Webster, 2017 W. Gray St., 75 addnl. frame dwellings, concrete slab fdn., in Scott Terrace, Sect. 5 as an extension. $525,000.

▲ **Tex., Houston**—DWELLINGS—Melvin A. Silverman, 6205 Almeda Rd., plans by Lloyd & Morgan, 4605 Montrose Blvd., 100 frame dwellings, concrete slab fdn., $600,000; 50 frame duplexes, $550,000 in new area of Pleasantville off Market St. Rd.

▲ **Tex., Temple**—BANK, etc.—First Natl. Bank, W. Guy Draper, pres., Main St. and Avenue A, plans by Wyatt C. Hedrick Co., 1004 First Natl. Bank Bldg., Fort Worth, 10 story, 90x110 ft. steel, marble, glass bank and office. $1,000,000.

Tex., Waco—STORE—Sears-Roebuck & Co., 1409 S. Lamar St., and c/o Phil E. Teeling, Liberty Bldg., plans by George L. Dahl, 1920½ Main St., Dallas, 100,000 sq. ft. masonry store, 510 N. 18 St. $750,000.

Wis., Boscobel—HOSPITAL—Boscobel Memorial Hospital Assn., Boscobel, plans by Durrant & Berquist, Boscobel, 1 story, bsmnt. hospital. $354,000.

▲ **Alta., Edmonton**—APARTMENT—Hamilton Enterprises Corp., 1390 Sherbrook St. W. Montreal, Que., 525 unit apartment project, in Strathern sub-division between 87 and 90 Sts. and 95 and 97 Sts. Approx. $3,000,000.

INDUSTRIAL BUILDINGS

Calif., San Francisco—MANUFACTURING—White Star Mfg. Co., 67 W. Burnside St., Portland, Ore., manufacturing bldg. $250,000.

Conn., Stratford—TRUCKING TERMINAL—Middle Atlantic Transportation Co., c/o Leo F. Caproni, 1221 Chapel St., New Haven, cinderblock, trucking terminal, $100,000.

Ga., Atlanta—WAREHOUSE, etc.—Seiberling Tire Co., Whitehall St. S. W., warehouse and office. $100,000.

▲ **Ky., Ashland**—PLANT—Armco Steel Corp., Asnland, expansion steel plant, $15,000,000.

▲ **Ky., Louisville**—FACTORY, etc.—Phillip Morris & Co. Ltd., Inc., 1930 Maple St., plans by Lockwood Greene Engrs., Inc., engr. and archt., 10 Rockefeller Plaza, New York N. Y., cigarette factory, warehouses, etc. $6,000,000, incl. equip.

Mass., Dorchester—MANUFACTURING—Recording & Statistical Corp., 183 Essex St., Boston, 2 story, brick mfg. bldg., Old Colonev Parkway, $500,000. Maurice A. Reedy, 101 Tremont St., Boston, consult. engr.

Mich., Detroit—FACTORY, etc.—Owner, c/o Paul Tilds & Assoc., archts., 18000 James Couzens Hy., 240x440 ft. brick, concrete factory and office, $250,000.

▲ **Minn., Minneapolis**—GARAGE—Minneapolis Auto Park, Inc., L. Wakefield, Jr., pres., H. E. Halladay, atty., 1300 Soo Line Bldg., plans by Larson & McLaren, 1901 Foshay Tower, and D. L. Briegel & Assoc., 302 McKerchey Bldg., Detroit, Mich., assoc. archts. and engrs. 823 car parking garage, 9 St. and LaSalle Ave. $1,000,000.

▲ **Mo., Kansas City**—PLANT—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., assembly plant approx. 12 mi. north of downtown Kansas City, on 150 acre tract. Approx. $25,000,000-$30,000,000.

▲ **Neb., Lincoln**—GRAIN ELEVATOR—Westcentral Cooperative Grain Co., 409 Grain Exchange, Omaha, 2,000,000 bu. grain elevator. $1,000,000.

N. Y., Hornell—DIESEL REPAIR—Erie R. R. Co., I. H. Schram, ch. engr., Midland Bldg., Cleveland, 15, O., expand diesel repair and maintenance center, altering existing bldgs. and addn. new facilities. Approx. $500,000.

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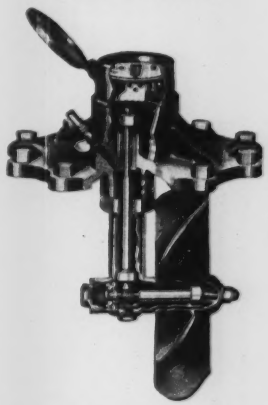

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N. Y., Long Island City—FACTORY—American Loose Leaf Corp., 257 W. 17 St., New York, Zone 11, plans by Jammes P. Guinare, c/o owner, 2 story factory and office, 46 Ave., west of Jackson Ave. $125,000.

N. Y., New York—GARAGE, etc.—Long Acres Properties, Inc., 1501 Broadway, Zone 18, plans by William Shary & Son, 22 E. 17 St., Zone 3, garage and auto repair shop, 4447-55 W. 40 St. $100,000.

▲ N. Y., New York—GARAGE—Penstation Garage, Inc., 50 W. 72 St., 800 car garage in Pennsylvania Station above auto ramps at south end of building, 4 story unit on 31 St. with 6 story unit abutting $2,000,000.

N. Y., New York—STORAGE—Summit Holding Co., 286 E. 137 St., Zone 54, plans by M. W. Del Gaudio, 545 Fifth Ave., Zone 17, 1 story storage, Bruckner Blvd. east of Lincoln Ave. $100,000.

O., Akron—FREIGHT TERMINAL—Roadway Express, Inc., 147 Park St., 60x260 ft. motor freight terminal on 17 acre tract, E. Archwood Ave. and large garage to service equipment. $250,000.

O., Dayton—FACTORY—S. & S. Tool Co., O. F. Schweller, pres., 32 N. Western Ave., 300x363 ft. factory, Gettysburg and Fairbanks Ave.

▲ O., Marion—DIESEL REPAIR—Erie R. R. Co., I. H. Schram, ch. engr., Midland Bldg., Cleveland, Zone 15, expand diesel repair and maintenance facilities, raise roof present diesel facility, re-arrange trackage in shops, installing pits and multiple working levels, relocating water lines, drainage and sewerage systems. $1,000,000.

▲ O., Tiffin—PLANT—American Radiator & Standard Sanitary Corp., Bessemer Bldg., Pittsburgh, Pa., plant modernization, incl. new kiln addn., cast shop, warehouse and office imprvs. $1,000,000.

Pa., Altoona—WAREHOUSE—Ward Trucking Corp., 21 7 Ave., revised plans by Gustave Steuber, R. D. 2, Canonsburg, 1 story, concrete block warehouse-shop, loading platform. $275,000. CD 2/19/48.

▲ Pa., Pittsburgh—WAREHOUSE—Pittsburgh Transfer & Storage Co., 601 General Robinson St., plans by Hunting, Larsen & Dunnells, 1150 Century Bldg., 2 story brick, block, steel warehouse, 35 St. and A. V. R. R. $5,000,000

Pa., Pittsburgh—PLANT—Westinghouse Electric Corp., Mahoney Bldg., 357 Blvd. of Allies, 1 story, brick, steel mfg. plant in West Mifflin Twp. $750,000.

Tex., Houston—PLANT—Dickson Gun Plant, c/o Hughes Tool Co., Gulf Bldg., reconditioning, repairing, etc. gun plant. $250,000.

Tex., Karnack—PLANT—Longhorn Ordnance Work, Karnack, reconditioning, imprv. Ordnance plant. $400,000.

Tex., Tyler—POWER PLANT—Texas Power & Light Co., Interurban Bldg., Dallas, enlarging electric light and power plant. $200,000.

Wash., Tacoma—PLANT—Carstens Packing Co., Tide Flats, Tacoma, 112x160 ft., steel fertilizer plant, $150,000.

N. B., Shippegan—PLANT—Sea Land Food Corp., Shippegan, processing plant, $300,000.

UNCLASSIFIED

Conn., Hartford—RAILROAD TRACKS—State, P. Thatcher, comptroller, State Capitol, Hartford, plans by Millchrest & Reynolds, 238 Palm St., railroad tracks at 40 acre site on Regional Market Spur Line to New Haven Rd., several rail sidings, S. Meadows, south of Charter Oak Bridge, $423,000.

Ga., Buford—NATURAL GAS SYSTEM—City, natural gas sys. Approx. $100,000. Littrell Eng. Co., P.O. Box 654, Moultrie, consult. engr.

Ill., Vandalia—SWIMMING POOL—City, Park Bd., Vandalia, voted $275,000 bonds, swimming pool.

▲ Ind., Gary—HUMP YARD—Elgin, Joliet & Eastern R. R., F. G. Campbell, ch. engr., 208 S. LaSalle St., Chicago, 4, Ill., hump yard with retarders to control movement railroad cars, $5,000,000.

Mich., Kalamazoo—SPRINKLER SYSTEM—State, A. N. Langius, dir. Bldg. Dpt., 115 State Office Bldg., Lansing, plans by Louis C. Kingscott & Assoc., 208 Elm St., Kalamazoo, sprinkler sys. for State Hospital, $175,000.

N. Y., Brooklyn—PLAYGROUND—Dpt. Parks, Arsenal Bldg., New York, plans by Gustave Chirlain, c/o owner, playground, storage and comfort station, 2902-26 Avenue Z. $230,000.

N. Y., Flushing—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, plans by Gustave Chirlain, c/o owner, 1 story comfort station, storage room, 67 Ave. and 173 St. $125,000.

Tex., Amarillo—SWIMMING POOL—City, E. H. Klein, mayor, 90x170 ft. concrete swimming pool, $150,000. Paddock Eng. Co. of Texas, 3727 Atwell St., Dallas, consult. engr.

Tex., Houston—FREIGHT YARDS—Missouri Pacific R.R. Co., R. P. Hart, ch. engr., Missouri Pacific Bldg., St. Louis 3, Mo., addnl. exten. freight yards, incl. Yards A, B, and C trackage. $280,000.

Tex., Texas City—LIGHTING SYSTEM—City, voted bonds, traffic lighting sys. $175,000. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr. CD 8/23.

Tex., Tyler—LIGHTING SYSTEM, etc.—Texas Power & Light Co., Interurban Bldg., Dallas, exten. lighting sys. in city and revamping existing lines, $90,000; electric transmission lines from outside areas to city limits, $75,000.

Tex., Waco—STADIUM—Baylor University, Waco, 8,000 seating capacity, concrete, heavy timber stadium expansion. $100,000. CD 4/11/49.

CONSTRUCTION REPORTS–Second Section

WATER SUPPLY

BIDS ASKED

Ind., La Porte—B.A. 10/2—At Office City Clerk, Masonic Bldg., WW imprvs., incl. Contr. A, well and pump. equip., $25,000, Plans deposit $15; well house, aerators, aeration basin revisions, quick mix basin, sedimentation basin revisions, filter bldg. addns., new pump and service bldg., garage, Kankakee Station revisions; $317,500, Plans deposit $30; Contr. C. furnishing, installing 68,700 ft. 4- to 12-in. c.i. pipe, 80,000 lb. of fittings, valves, hydrants, appurtenances, cleaning and repainting of two 500,000 gal. elevated tanks, est. base $307,500 with Addendum 1, $360,000. Plans deposit $20. Paul J. Kleiser & Assocs., Terre Haute, consult. engrs. CD 11/19/47.

Minn., Clearbrook—B.A. 10/3—Village, E. E. Lewis, clk., WW. sys., incl. drilled well, elevated tank and tower, distr. mains, etc. $35,000. Plans deposit $10. W. C. Larson, Detroit Lakes, engr.

Neb., Alma—B.A. 10/3—City, water storage tank and mains, $53,500. Harold Hoskins & Assoc., 231 N. 11 St., Lincoln, engrs.

Tex., Eagle Pass—B.A. 10/5—City, water main exten., appurtenances, inc. 33,600 lin. ft. 6- to 10-in. c.i. pipe. $105,000. The Marvin Turner Engineers, Naile Bldg., Annex, Austin, engrs. CD 12/2/48.

Ill., Medora—B.A. 10/7—Village, Village Hall, WW sys. Plans deposit $5. Caldwell-Rhoads Co., West College at Diamond Sts., Jacksonville, engr.

Ga., Atlanta—B.A. 10/9—City, Hemphill Water Purification Plant addns. Plans deposit $25. Wiedeman & Singleton, P. O. Box 1878, engrs. CD 11/22/46.

LOW BIDDERS

Mass., Cambridge—City, P. Wks. Dpt., City Hall, Sept. 13, WW. imprvs., Fresh Pond Area, from R. Zoppo, 842 Providence Hy., Norwood, **$833,230.** CD 9/1.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Pa., Upper Darby—B.A 10/3—Upper Darby Twp. Comm., Upper Darby, storm sewers, Elm Ave and Hillcrest Rd. Approx. $50,000; sanitary sewers, Naylors Run, Approx. $50,000. J. Earl Kirk, twp. engr. CD 12/12/45.

Md., Baltimore—B.A. 10/4—City, Bureau Sewers, 312 Municipal Bldg., Zone 2, brick sludge drying plant and/or stack, Back River Sewage Treatment plant. Plans deposit $5. John J. Hunt, 312 Municipal Bldg., Zone 2, sewerage engr. CD 1/12/45.

Minn., Fertile—B.A. 10/4—Village, S. H. Johnson, clk., 15,000 lin. ft. 12-to 36-in. storm sewerage sys. $50,000. Plans deposit $10. W. C. Larson, Detroit Lakes, engr.

N. Y., New York—B.A. 10/4—Dpt. P. Wks., Municipal Bldg., Gansevoort Destructor Plant, for Dpt. Sanitation, incl. Contr. 6, structures and equip; Contr. 7, electrical work; Contr. 8, heating and ventilating; Contr. 9, plumbing. Plans deposit $25 Contr. 6; $15 for Contrs. 7, 8, and 9. Extended date. CD 8/15.

Calif., Los Angeles—B.A. 10/9—Los Angeles County Sanitation Dist. 2, 1206 S. Maple Ave., Joint Outfall D. Unit 4 and portion of Unit 5. Approx. $50,000. Extended date. Plans deposit $5. A. M. Rawn, dist. engr.

La., Morgan City—B.A. 10/10—City, 30 ton per day garbage incinerator, appurtenances, apparatus and equip. Plans deposit $20. T. Baker Smith, Houma, engr. CD 7/25.

Tex., Dallas—B.A. 10/10—City, City Hall, Main and Harwood Sts., Cadiz Sewage Pumping Station. $550,000. Extended date. J. L. Conroy, Pub. Wks. engr.

Ore., Portland—B.A. 10/11—City, City Hall, 2 mi. Grand Avenue interceptor unit of sewage disposal sys., 1¼ mi. 66 in., ½ mi. 72 in. rein.-con. pipe. Plans deposit $25. L. G. Aperson, city engr. CD 7/20/45.

LOW BIDDERS

▲ **Pa., New Cumberland**—New Cumberland Boro Auth., Boro Hall, New Cumberland, Sept. 15, approx. 128,629 ft. 6- to 18-in. sewers, 404 manholes, other appurtenances from Intercounty Constr. Corp., 4720 Baltimore Ave., Hyattsville, Md., **$849,876***Primary sewage treatment plant, incl. central bldg.; separate sludge digestor, primary settling tanks, sludge drying beds, etc. 2 sewage pump. stations, plumbing, heating and electrical work, from Consolidated Constr. Co., Inc., Collingswood, N. J., **$221,442.** CD 6/18.

CONTRACTS AWARDED

▲ **Fla., Tampa**—City, City Hall, master sewerage sys., Div. E8-sewers and Div. B5 Seminole Heights intercepting sewers and Div. G-9 Comanche Ave. intercepting sewers, to Stansfield Constr. Co, 2401 Horatio St., **$321,946** and **$393,473** respectively***Div. E-10, sewers, to J. B. Owens, 3900 E. Broadway Ave., **$318,316*****Div. C-5 West Tampa trunk sewers, to Cone Bros. Contg. Co., Caeser and Cumberland Aves., **$118,148.** Grand total, $1,151,883.

Mich., Port Huron—City, City Comm., City Hall, sewage disposal, 3 interceptors, etc., to Drainage Contg., Inc., 22148 Michigan Ave., Dearborn, **$845,642.** Bids 9/5. CD 8/24.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

October 3	October 6
Massachusetts	North Dakota
Oklahoma	October 10
Wisconsin	Minnesota & North
October 4	Dakota
Louisiana	New Jersey
October 5	October 11
Kansas	New York
	October 13
	Pennsylvania

CONTRACTS AWARDED

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 43, constr. 6 bridges for Turnpike in city of Newark, Essex Co., to Franklin Constr. Co., 12 Central Ave., Newark, **$2,176,300.**

▲ **N. Y., New York**—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. superstructure south unit and reconstructing north unit Eastern Blvd. Bridge over Bronx River, Bronx Boro, to Horn Constr. Co., Inc., 1776 Broadway, Zone 19, **$1,338,262.** Bids 7/12. CD 7/17, under LB.

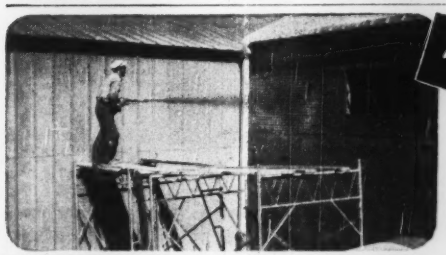
STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

October 3	North Dakota
Maryland	October 10
Massachusetts	New Jersey
Oklahoma	October 11
Wisconsin	California
October 4	New York
Louisiana	October 13
October 5	Pennsylvania
Kansas	October 18
October 6	California
Minnesota	

† **Illinois**—B. A. About 10/6—U. S. Eng., 808 U. S. Court House & Custom House, St. Louis, 1, Mo., road surfacing on levee, Proj. Item I-G (1), Prairie Du Rocher, and vicinity, (Edgar Lakes and Prairie Du Rocher and Modoc Drainage and Levee Districts), Randolph Co.



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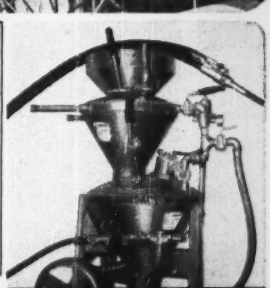
Model 1000 BONDACTOR inset at right.



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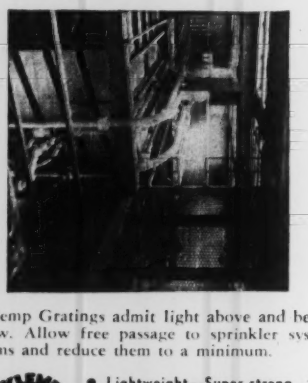

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Minn., Hastings—B.A. 10/10—Dakota Co., N. G. Yantz, aud., grading 3.3 mi. between West Co. Line and T.H. 65 East of Antlers Park, Proj. S.P. 19-518-01 (SAR 6 A), Minnesota Proj. S 381 (3), Plans deposit 70c.; grading 4.5 mi. between T.H. 65 north of Orchard Gardens and S.A.R. 4, Proj. S.P. 19-520-01 (SAR 11), Minnesota Proj. S 201 (3), Plans deposit 50c.; grav. 3.3 mi. between West Co. Line and T.H. 65 east of Antlers Park, Proj. S.P. 19-518-02 (SAR 6 A), Minnesota Proj. S 381 (4), Plans deposit 50c.; grav. 4.5 mi. between T.H. 65 North of Orchard Gardens and S.A.R. 4, Proj. S.P. 19-520-02 (SAR 11), Minnesota Proj. S 201 (4), Plans deposit 50c.

LOW BIDDERS

Maryland—State Rds. Comm., Baltimore, Zone 2, Sept. 13, b. conc. wedge, surf. courses, crusher run, sub-base, macad. base, penetration macad. base, grading, drainage, surf., and reloc. 3.123 mi. Oakland Keyser's Ridge Rd., Contr. G-155-5-615, Garrett Co., from Keeley Constr. Co., Clarksburg, W. Va., $384,096; c. conc. pavement, combination curb and gutter, curbing, sidewalk and storm water drainage, grading, drainage, surf. 1.259 mi. Divided Hy. along Georgia Ave., Contr. M-435-2-315, Montgomery Co., from Wilmoth Paving Co., First and Penn. S.E., Wash., D. C., $556,864 grav., $558,144 stone, $558,720 slag. CD 9/6.

Minnesota—State Hy. Dpt., St. Paul, Sept. 15, grading, paving, bridge 0.1 mi. on E. Franklin Ave. between 18 and Snelling Aves., in Minneapolis from W. D. Gwetsen Co., 900 Glenwood Ave., Minneapolis, $679,273. CD 9/1.

▲ New York—Bureau Contracts & Accounts, Albany, construct 0.61 mi. Van Wyck Expressway, incl. 5 bridge structures, Queens Co., to Gull Contg. Co., Inc., 33-15 Lawrence St., Flushing, $3,473,519. Bids 8/2. CD 8/27, under LB.

▲ Pennsylvania—State Hy. Dpt., Harrisburg, Sept. 15, construct divided highway consisting of c. conc. pavement 22 ft. and variable in width on each side of an earth divisor area 20 ft. and variable in width, incl. 6 rein.-con. structures; c. conc. pavement 40 ft. and variable in width, crushed aggregate base with bit. surf. variable 34 to 54 ft. wide and shoulder grading, widen. of existing pavement with crushed aggregate base two to 37 ft. wide and bit. surf. existing pavement and new base variable 20 to 54 ft. wide, 28.177 ft. long, L. R. 246, T. R. 1A, T. R. U. S. 19, in Zelienople Boro-south, incl. north and south of Allegheny-Butler Co. line, Allegheny and Butler Counties, from Allegheny Asphalt & Paving Co., Inc., 801 Bingham St., Pittsburgh, Zone 3, $1,713,992 crushed aggregate base with bit. surf. 20 ft. wide, incl. construction an I-beam bridge 30.902 ft. L. R. 56 (6), T. R. 45, from point 6 mi. east of Seven Stars to Pine Grove Mills, Centre Co., from D. E. Smith, Inc., Mifflintown, $395,907 crushed aggregate base with bit. surf. 20 ft. wide, incl. 2 rein.-con. structures, 2 rein.-con. bridges 31,161 ft. L. R. 56 (8), T. R. 45 from Seven Stars to Huntington-Centre Co. line, Huntingdon Co., from County Constr. Co., 25 E. Main St., Carnegie, $545,807. CD 8/25.

CONTRACTS AWARDED

▲ Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, state hy. and bridge, F. A. Proj. FI 62-5, Danvers, Middleton, Topsfield, Boxford, to Savin Constr. Co., 10 Village St., East Hartford, Conn., $3,953,370. Bids 8/22, awarded 9/8. CD 9/1, under LB.

▲ Pennsylvania—State Hy. Dpt. Harrisburg, 3.16 mi. two lane bit. on crushed aggregate surf., 3 rein.-con. structures, two concrete deck girder bridges, one over Blacklick Creek and one over Ashtman Run, Rural Routes 32004 and 32003, Burrell, Blacklick and Conemaugh Twps., Indiana Co., to A. E. O'Block, Unity, $1,208,532. Bids 9/9. CD 9/13, under LB.

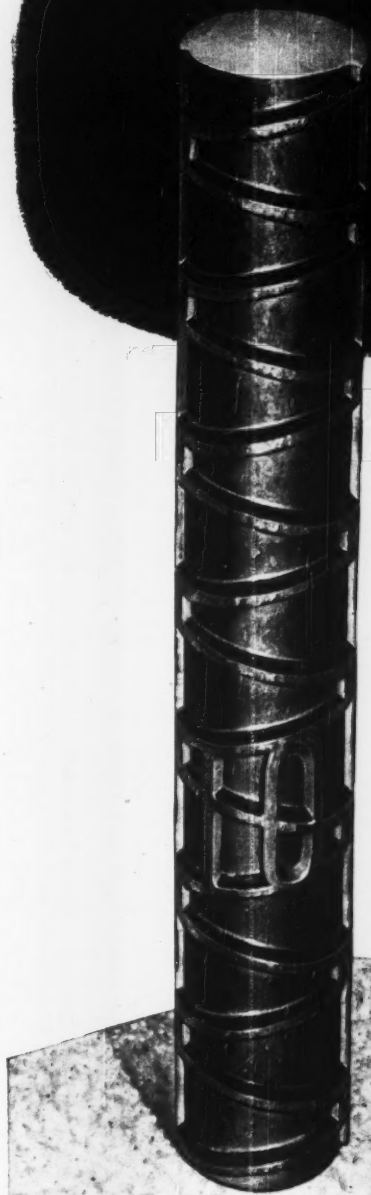
EARTHWORK, WATERWAYS

BIDS ASKED

† Ohio—B. A. 10/3—U. S. Eng., Niagara and Bridge Sts., Buffalo 7, New York, maintenance dredging, Outer Harbor and River Entrance channel, Cleveland Harbor, Serial No. CIVENG 30-023-51-9.

† South Carolina—B.A. 10/4—U. S. Eng., Customhouse, Charlestown, maintenance dredging at 3 shoaled reaches in sect. of Atlantic Intracoastal Waterway between Charleston and Beaufort, Shoal No. 2, most northerly shoal in North Creek, approx. 2 mi. south of State Hy. Bridge 174 and Shoal No. 3, southerly shoal, is at entrance to Ashepoo-Coosaw Cutoff, Coosaw River end, Serial No. CIVENG 38-081-51-3.

† Colorado—B.A. 10/5—Bureau Reclamation, Dpt. Interior, Grand Junction, concrete flumes, Highline Canal, Grand Valley Proj., situated



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(Continued From Page 82)

Minn., Litchfield—HOSPITAL—B.A. 10/4—Meeker Co., G. Hannula, aud., 3 story, bsmnt., L-shape, brick, 42x158 ft., main wing, 50x50 ft. rear wing Meeker Co. Memorial Hospital, $725,000. Plans deposit $25. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 1/6.

N. C., Chapel Hill—HIGH SCHOOL—B.A. 10/4—Chapel Hill School Administrative Unit, Chapel Hill, 42,329 sq. ft. high school. Approx. $300,000. Plans deposit $25. H. Raymond Weeks, Inc., Durham, archt.

Pa., East Stroudsburg—LAUNDRY—B.A. 10/4—Dpt. Property & Supplies, 1400 N. 9 St., Harrisburg, general contract, heating and piping, plumbing and drainage, electrical work laundry bldg. at East Stroudsburg State Teachers College. $75,000. Plans deposit $2.50 each. Rinker & Kiefer, Stroudsburg, archts. W. B. Jefferis, c/o owner, ch. engr. CD 11/28/49.

▲ **Pa., Hollidaysburg**—LAUNDRY, etc.—B.A. 10/4—General State Auth., 18 and Herr Sts., Harrisburg, general contract, plumbing, heating, electrical work for laundry bldg., at Hollidaysburg State Hospital, $180,000. Plans deposit $10 each, CD 4/25; general contract, heating, plumbing, electrical work for disturbed patients bldg., $1,325,000. Plans deposit $25 each. Hunter, Caldwell & Campbell, 3601 5 Ave., Altoona, archts. A. F. Jones, c/o owner, ch. engr. CD 12/23/49.

Pa., Indiana—DORMITORY, etc.—B.A. 10/4—General State Auth., 18 and Herr Sts., Harrisburg, general contract heating, plumbing, electrical work elevator for construction men's dormitory at Indiana State Teachers College, $900,000. Plans deposit $15 each. Bowers & Barbalat, Bakewell Bldg., Pittsburgh, Zone 19, archts., A. F. Jones, c/o owner, ch. engr., CD 12/23/49; rewiring music conservatory, kitchen, dining room and cottages, $59,000, Plans deposit $2.50, H. F. Lenz, Fischer Bldg., Johnstown, engr.

† **S. C., Charleston**—STATION IMPRVS.—B.A. 10/4—U. S. Navy, Naval Base, Charleston, rehabilitating, exten. Bldg. 11666, at Receiving Station, NOY 23056, Spec. 25496; rehabilitating 6 bldgs. and constr. 5 concrete block bldgs., NOY 23057, Spec. 25095. Plans deposit $5; metal stairways, porches, concrete landings, NOY 23059, Spec. 25497, Plans deposit $5.

Va., Hampton—SCHOOL—B. A. 10/4—At office Supt. Schools, Citizens Bank Bldg., Willis-Sims School alterations, addns. $500,000. Plans deposit $30. Williams, Coile & Blanchard, Melson Bldg., Newport News, archts.

† **Va., Norfolk**—RENOVATING STRUCTURES—B.A. 10/4—Pub. Wks., Office, U. S. Naval Base Zone 11 renovating structures at U. S. Naval Base, Spec. 25392. Plans deposit $10.

Wis., Eau Claire—LABORATORY—B.A. 10/4—Bd. Regents Normal Schools, Madison, laboratory at State Teachers College. Plans deposit $25. Eschweiler & Eschweiler, 720 E. Mason St., Milwaukee, Zone 2 R. C. Kirchhoff, Madison, state archt.

Wis., Platteville—RESIDENCE HALL—B.A. 10/4—Bd. Regents Normal Schools Madison, residence hall at State Teachers College, $325,000. Plans deposit $25. Boyum, Schubert & Sorenson, La Crosse, archts. R. C. Kirchhoff, Madison, state archt. CD 12/3/48.

Wis., Stevens Point—RESIDENCE HALL—B.A. 10/4—Bd. Regents Normal Schools, Madison, residence hall at State Teachers College, $325,000. Plans deposit $25. Boyum Schubert & Sorenson, La Crosse, archts. R. C. Kirchhoff, Madison, state archt. CD 12/19/48.

N. S., Dartmouth—CENTRAL HEATING, PLANT, etc.—B.A. 10/4—J. D. McCarthy, secy., c/o Canadian Commercial Corp. 70 Lyon St., Ottawa, Ont., central heating plant, coal handling equip., Tender G-39-3N-33, erecting steam lines, and steam plant auxiliaries for central heating plant, both at H. M. C. S. Sherwater. Approx. $150,000. Plans deposit $25 and $100.

Conn., Storrs—ANIMAL INDUSTRY, etc.—B.A. 10/5—Controllers Office, Hartford, animal industry and dairy mfg. plant University of Connecticut, $480,000. CD 1/9/49.

Ind., Gary—POLICE HEADQUARTERS, etc.—B.A. 10/5—Bd. P. Wks., Sam S. Dubin, pres., City Hall, police headquarters and court bldg. $600,000. Plans deposit $40. Extended date. J. H. Wildermuth, 527 Broadway, archt. CD 8/22.

O., Toledo—SCHOOLS—B.A. 10/5—Bd. Educ., c/o Wm. E. Hallauer, Southard Ave.; Beverly School, Rugby Dr. and Copland Blvd., $440,000. Plans deposit $15. Bellman, Gillett & Richards, 518 Jefferson St., archts.; CD 6/19. Burroughs School addn., 2404 South Ave., $175,000. Plans deposit $5, Peterson, Hoffman & Barber, 1051 Spitzer Bldg., engr. and archts. CD 10/27/49.

Tex., Harlingen—TRANSIT SHED—B.A. 10/5—Arroyo Colorado Navigation Dist., c/o C. H. Purdy, Harlingen, transit shed for Harlingen Harbor, West Side. $75,000.

Kan., Arkansas City—SCHOOL—B.A. 10/6—City, Bd. Educ., Junior College, $300,000. T. W. Williamson, Natl. Bank of Topeka, Topeka, and V. H. Loebsack, 1916 Warner Court, Topeka, archts. CD 6/22.

Ky., Danville—FACTORY—B.A. 10/6—City, 3 story, 150x300 ft., brick factory, $150,000. Plans deposit $150 refundable. F. Warfield & Assoc., Nashville Trust Bldg., Nashville, archts. John I. Gillig, 180 Walnut St., Lexington assoc. archt. CD 8/21.

N. C., Wilson—BUILDINGS—B.A. 10/6—North Carolina Sanatorium, Dr. H. F. Eason, Med. Dir., Wilson, buildings, wing for Negroes, service bldg., south wing addn., nurses residences, residences. Plans deposit $50 general contract, $20 each others. Walter W. Hook & Assoc., Inc., 303½ W. 4 St., Charlotte, archt. CD 8/11.

Ont., Chalk River—LABORATORY—B.A. 10/6—Purch. Agt National Research Council, Sussex St., Ottawa, labortary exten. known as Bldg. 250 Exten. at Atomic Energy Proj., Tender 2-6-1162. Approx. $250,000. Plans deposit $100.

B. C., Kelowna—HOSPITAL—B.A. 10/7—C. F. Lavery, secy., Kelowna Hospital Society, Kelowna, 3 story, rein.-con. hospital addn. with attached boiler house and laundry. Plans deposit $25. H. Whittaker, 710 Johnson St., Victoria, archt.

Wash., Lowell—SCHOOL—B.A. 10/9—School Dist. 2, Everett High School, Everett, 1 story, masonry school, $400,000. Plans deposit $60. W. A. Johnson & Assocs., 1 Natl. Bank Bldg., Everett, archts. CD 2/28.

Ont., Milton—HOME FOR AGED—B.A. 10/9—Halton Co., W. Dean, clk., Milton, Home for the Aged, $350,000. Plans deposit $40. Rountthwaite & Fairfield, 22 Harbord St., Toronto, archts. CD 9/23/49.

Calif., San Francisco—COLLEGE OF LAW—B.A. 10/10—Regents University of California, Berkeley, 77,320 sq. ft., rein.-con. Hastings College of Law, Approx. $250,000. Plans deposit $100. Masten & Hurd, 526 Powell St., San Francisco, archts. G. M. Simonson, 507 Howard St., San Francisco, engr.

Calif., Walnut Creek—SCHOOL—B.A. 10/10—Acalanes Union-High School Dist., Lafayette, 1 story, structural steel Walnut Creek High School. Approx. $250,000. Plans deposit $50. Ernest J. Kump, 262 California St., San Francisco, archt. CD 4/28.

Calif., Westmorland—SCHOOL—B.A. 10/10—Westmorland Union School Dist., Westmorland, four 1 story school bldgs. $259,470. Extended date. Bowen, Rule Bowen, 2835 Gilroy St., Los Angeles, archts. CD 8/30.

LOW BIDDERS

Conn., Torrington—SCHOOL—City, Town Hall, Aug. 31, school, from Ronvicini Bldg. Co., New Harwinton Rd., $698,000. CD 8/11.

▲ **Ga., Athens**—SCHOOL—City, rejected bids Sept. 6, high school, L. B. $1,125,000.

▲ **Ill., Carbondale**—INDUSTRIAL EDUCATION, etc.—State, Springfield, Sept. 15, general contract industrial education bldg. and completing physical education wing and general contract life science bldg. and animal bldg., at Southern Illinois University, from Federal Constructors, Inc., 273 W. Madison St., Chicago, $795,000 and $880,000 respectively. CD 8/11.

▲ **Ind., Indianapolis**—SCHOOL—Bd. School Comrs., 150 N. Meridian St., rejected bids Aug. 25, Emmerick Manual Training High School, Pleasant Run Blvd., and Madison Ave. $3,000,000. CD 9/1, under LB.

▲ **Md., Baltimore**—SCHOOL—City, R. E. L. Williams, bldg. constr. engr., 410 Municipal Bldg., Zone 2, Sept. 20, 3 story, bsmnt. 4 wings Edison Boys Vocational School, Mergenthaler Printing School, brick, steel, limestone, concrete Barton Girls Vocational School, from Joseph F. Hughes & Co., 511 N. Charles St., $6,188,266. CD 9/1.

Md., Catonsville—COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Sept. 14, four 2 story, bsmnt., brick, stone convalescent cottages at Spring Grove State Hospital, from Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, $936,500. Est. $800,000. CD 8/29.

▲ **Md., Crownsville**—COTTAGES—State, Dpt. P. Imprvts., Sept. 14, six 2 story, part bsmnt., brick stone convalescent cottages at Crownsville State Hospital, from Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, $1,375,000. Est. $1,200,000. CD 8/29.

▲ **Md., Owings Mills**—INFIRMARY and COTTAGES—State Dpt. P. Imprvts., 506 Park Ave., Baltimore, Sept. 14, four 2 story, brick, stone, steel infirmary bldgs., at Rosewood State Training School, from Henry A. Knott, Inc., 2107 N. Charles St., Baltimore, $1,038,222; 1 story, 6 wing, brick, cinder block, steel 301 ft. long Tuberculosis Cottage from Wm. T. Lyons, Inc. Tower Bldg., Baltimore, $362,564. CD 8/29.

Md., Sykesville—COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, Sept. 14, four 2 story, part bsmnt., brick, stone convalescent cottages at Springfield State Hospital, from Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, $939,500. Est. $800,000. CD 8/29.

Mass., Abington—SCHOOL—Town, School Dpt., Sept. 9, 1 story, 336x364 ft. Junior High School, adjacent to Senior High School, from Hays & Watkins Constr. Co., 12 Cottage St., Brockton, $769,000. Walter M. Gaffney, 43 Potter Sts., Hyannis, archts. CD 8/25.

Mass., Wareham—SCHOOL—Town, School Bldg. Comm., Town Hall, 1 and 2 story, brick, cinder block high school from John Capobianco, 44 School St., Boston, $846,000. Gilbert Small & Co., Inc., 10 State St., Boston, engr. CD 8/14.

Minn., Faribault—DORMITORY—State Dpt. Admin., State Capitol, St. Paul, Sept. 12, general contract construct 3 dormitories, heating plant, addn. and alterations at State School and Colony, from F. O. Watson Co., 450 Baker Bldg., Minneapolis, $978,200. CD 8/31.

▲ **Neb., Omaha**—HOUSING—Omaha Housing Auth., 5520 S. 30 St., rejected bids Sept. 12, housing, 30 and Spencer Sts. L. B., $2,319,240; 30 and Lake Sts., L. B. $3,317,216. CD 9/18, under LB.

N. J., Secaucus—HOSPITAL WING—Hudson Co., Court House, Jersey City, Sept. 14, wing for male patients at County Mental Diseases Hospital, from James

Mitchell, Inc., 74 Montgomery St., Jersey City, $865,000 on base bid; $775,000 on general contract. CD 8/25.

▲ **Okla., Norman**—DORMITORIES—State Bd. of Regents, Capitol, Oklahoma City, Zone 5, Sept. 12, four 4 story dormitories for men students complete with dining rooms, from Harmon Constr. Co., 100 S. Indiana St., Oklahoma City, Zone 4, $1,898,675. Est. $1,750,000. CD 8/22.

Pa., Connellsville—HOUSING—Connellsville Housing Auth., Connellsville, Aug. 30, 1 and 2 story, brick veneer on frame housing, from Branna Constr. Corp., Bessemer Bldg., Pittsburgh, $827,000. Est. $550,000. CD 8/15.

▲ **Pa., Phila.**—HOUSING—Phila. Redevelopment Auth., 22 St. and Parkway, public housing development, Fairmount Ave., etc. from United Building Constr. Co., 845 N. 19 St. $1,743,000. Bids 8/15. CD 7/27.

▲ **Pa., Reading**—HOME—Comrs. Berks Co. Court House, Sept. 14, general contract county home, from Edward A. Reider, 110 S. 4 St. $1,345,000. CD 8/22.

▲† **Tenn., Tullahoma**—BUILDINGS—U. S. Eng., Tullahoma, 2 buildings for Arnold Engineering Development Center's high-altitude engine test facilities, from Massman Constr. Co., 7400 Wilson Rd., and S. Patti Constr. Co., 1340 Admiral St., Kansas City, Mo., and MacDonald Constr. Co., 3829 W. Pine St., St. Louis, Mo., $4,127,458 if c.i. flooring is used, $4,152,658 if cast steel is used. CD 7/27.

Va., Richmond—DORMITORY—Medical College of Virginia, Richmond, Sept. 8, nurses dormitory at Medical College of Virginia Hospital, from Doyle & Russell, Central Natl. Bank Bldg., $834,200. CD 7/31.

CONTRACTS AWARDED

Calif., Modesto—HOSPITAL—Stanislaus Co., Court House, general contract 3 story, bsmnt., rein.-con. central county hospital unit, to M. A. Little, 1 Grand View St., San Francisco, $624,000. Bids 9/12. CD 8/22.

Conn., Storrs—STUDENT ACTIVITIES—State, State Capitol, Hartford, student activities bldg., B/A-D-110, to A. E. Stephens Co., 2100 Main St., Springfield, Mass., $966,400. Bids 8/16. CD 7/28, under LB.

Md., Catonville—COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, four 2 story, bsmnt., brick, stone convalescent cottages at Spring Grove State Hospital, to Baltimore contractors, Inc., 711 S. Central Ave., Baltimore, $900,000. Bids 9/14. CD 9/19, under LB.

▲ **Md., Crownsville**—COTTAGES—State, Dpt P. Imprvts., six 2 story, part bsmnt., brick, stone trim convalescent cottages at Crownsville State Hospital, to Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, $1,335,000. Bids 9/14. CD 9/19, under LB.

▲ **Md., Owings Mills**—INFIRMARY and COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, four 2 story, brick, stone, steel infirmary bldgs., at Rosewood State Training School, to Henry A. Knott, Inc., 2107 N. Charles St., Baltimore, $1,038,222; to Wm. T. Lyons, Inc., Tower Bldg., Baltimore, $362,564. CD 9/19, under LB.

Md., Sykesville—COTTAGES—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, four 2 story, part bsmnt. brick, stone convalescent cottages at Springfield State Hospital, to Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, $903,000. Bids 9/14 CD 9/19, under LB.

Neb., Beatrice—HIGH SCHOOL—Bd. Educ., Beatrice, general contract high school, to Jenson & Ridge, Box 1918, Wichita, Kan., $825,479. Bids 8/29. CD 8/9.

▲ **N. Y., Buffalo**—HOSPITAL—Dpt. P. Wks., State Office Bldg., Albany, cancer hospital and research center at Roswell Park Memorial Institute, to Wm. A. Berbusse, Jr., 103 Park Ave., New York, $4,565,000. Bids 8/9 CD 8/18, under LB.

N. Y., Hilton—SCHOOL—Bd. Educ., Central School Dist. 1, Hilton, Junior and Senior High School, to R. F. Hyland, 375 Averill Ave., Rochester, $587,563. Bids 8/8. CD 7/25.

N. Y., Hudson—COTTAGES—Bureau Contracts & Accounts, Albany, cottages at N. Y. S. Training School for Girls, to George Colon Constr. Corp., 103 E. 125 St., New York, Zone 35, $644,344. Bids 8/23. CD 8/25, under LB.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, general contract, Sect. 11, Alfred E. Smith Houses, Proj. NYS 25, bounded by Madison, Catherine, Oak, James and New Chambers St. and St. James Pl., to Caldwell-Wingate Co., 101 Park Ave., Zone 17, $5,938,000; plumbing, to Eugene Duklauer Co., 215 E. 38 St., Zone 16, $564,538. CD 8/31, under LB.

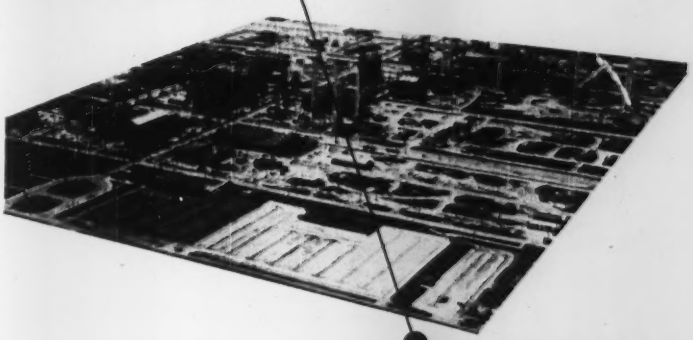
▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, foundations and general contract for Stephen Foster Houses, Proj. No. NYS-30, Sect. 1, incl. Bldgs. 1, 2, 3, 4 and 5 in area bounded by W. 114 St., 5 Ave., W. 125 St., Lenox Ave., and in area westerly portion of block bounded by W. 113 St., 5 Ave., W. 114 St. and Lenox Ave., to George F. Driscoll Corp. & Moccia Constr. Corp., 41 E. 42 St., Zone 17, $4,465,644. Bids 8/15. CD 8/18, under LB.

▲ **Okla., Oklahoma City**—HOSPITAL—State Bd. of Regents, Capitol, out-patient and neuro-psychiatric ward bldg. for University Medical School, to Charles M. Dunning Constr. Co., 420 N. Hudson St., Zone 2, $1,264,431. Bids 9/7, awarded 9/13. CD 8/25.

† **Pa., Altoona**—BARRACKS, etc.—U. S. Eng., First and Douglass Sts. N.W., Wash. 25, D. C., barracks, mess hall, operations bldg., to Hadley Contg. & Constr. Co., 1213 Wood St., Phila., $928,923. CD 9/6.

▲ **Pa., Harrisburg**—SCHOOL—Harrisburg School Bd., 121 Chestnut St., general contract. Camp Curtin Junior High School, 6 and Division Sts., to H. B.

The Building ● E. I. DU PONT DE NEMOURS & CO. (INC.) . . . ORANGE, TEXAS



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Alexander & Son, 315 Vaughn St., $1,072,739. Bids 9/15. CD 9/6.

▲ **S. C., Spartanburg**—HOUSING—Spartanburg Housing Auth., c/o contractor, housing units, incl. 184 units, Proj. SC-3-5, to Cecil's, Inc., Spartanburg, $1,514,962. Bids 7/25. CD 8/2, under LB.

Tex., Houston—SCHOOL—Houston Independent School Dist., 1600 Washington St., Yates School, to Marshall Constr. Co., 4009 Center St. $978,400. Bids 8/28. CD 9/6, under LB.

Ont., Cornwall—HOME—United Counties of Stormont, Dundas & Glengarry, L. C. Kennedy, co. clk., home for the aged, small apartments, separate houses, hospital wings, to R. E. Stewart Constr. Co., 266 Wellington St. S., Sherbrooke, Que., $821,400. Bids 9/13, awarded 9/15. CD 8/21.

▲ **Ont., Toronto**—OFFICE, etc.—Liquor Control Bd. of Ontario, 454 University Ave., 4 story, 63x367 ft. office and 3 story 309x191 ft. warehouse, both structural steel, brick, limestone walls, to Foundation Company of Ontario, 2220 Bay St., $4,500,000. Bids 9/12, awarded 9/14. CD 8/24.

COMMERCIAL BUILDINGS

BIDS ASKED

R. I. Providence—PAROCHIAL SCHOOL—B.A. 10/2—St. Bartholomew's Roman Catholic Parish, 3 Center St., 2-story parochial school, Laurel Hill Ave. $300,000. Oreato, Di Saia, 703 Gardner Bldg., archt. CD 2/28.

Del., Elsmere (Wilmington P. O.)—SCHOOL—B.A. 10/3, Gleeson & Mulrooney, archts., 1612 Market St., Phila., Pa., school for Corpus Christi Roman Catholic Church, 912 New Road. $250,000.

▲ **N. Y., Syracuse**—GYMNASIUM—B.A. 10/3—Syracuse University, Syracuse, women's gymnasium, $2,000,000. Lorimer, Rich & Robbins L. Conn, 215 Montague St., Brooklyn, archts. CD 4/28/47.

Pa., Beaver Falls—DORMITORY—B.A. 10/3—Geneva College, Beaver Falls, 2 story, bsmnt., 43x148 ft., brick boys dormitory, $500,000. A. L. Martsolf, New Brighton, archt. CD 6/19.

Pa., Upper Darby—CHURCH—B.A. 10/3—W. Pope Barney & Roy W. Banwell, archts., Grand Trust Bldg., Phila., church for First Church of Christ Scientist, 6820 Chestnut St., Phila. Approx. $250,000.

R. I., Woonsocket—HOSPITAL—B.A. 10/3—Woonsocket Hospital, C. W. Christiansen, chs., Bldg. Comn., 2610 Union Trust Bldg., Providence, 4 story, bsmnt., 50x170 ft., brick, steel hospital, Cass Ave. $800,000. Plans deposit $25. Curtin & Riley, 45 Newbury St., Boston, Mass., archts. CD 5/16/45.

Md., Baltimore—HOSPITAL—B.A. 10/4—Associated Jewish Charities, Monument and Eutaw St., 2 story, bsmnt., 44x230 ft. and 44x57 ft., brick, steel, limestone Mt. Pleasant Hospital for Pulmonary Diseases, Belvedere and Greenspring Aves. $750,000. James R. Edmunds, Jr., 130 W. Hamilton St., archt. H. Walton Redmile, 2017 Maryland Ave., mech. engr. Grout, Snyder & Crandall, 20 E. Lexington St., struct. engrs. CD 10/6/49.

Mass., Northampton—SCHOOL—B.A. 10/5—Smith Vocational School, 80 Locust St., 2 story, 16,000 sq. ft., brick, steel, concrete, school, $250,000. Plans deposit $50. E. I. Leeds & Assoc., 153 Brighton St., Allston, archts. Albert Goldberg, 651 Boylston St., Boston, engr. CD 8/21.

N. C., Charlotte—HOSPITAL—B.A. 10/5—Bd. Directors, Mercy Hospital, Inc., Sister Mary Peter, pres., 2000 E. 5 St., hospital addn. Plans deposit $100 general constr., $50 mechanical work. R. Edwin Wilson, 1809 Plaza St., archt. CD 7/28.

▲ **Tex., Temple**—BANK, etc.—Bids Asked—First Natl. Bank, Temple, 10 story bsmnt., bank and office, $1,000,000. Wyatt C. Hedrick, First Natl. Bank Bldg., Fort Worth, engr. and archt. CD 9/12.

SOON LETS CONTRACT

▲ **Ill., Peoria**—APARTMENT—Robt. Silverstein Realty Co., 106 State St., soon lets contract 16 story, bsmnt., 208 unit steel, brick, stone, rein.-con. apartment, Main and Glen Oak Ave., $1,500,000. Simpson & Peck, 7919 Exchange Ave., Chicago, Zone 17, archts.

▲ **Ky., Lexington**—HOTEL—Main St. Properties, Inc., 120 E. Main St., soon lets contract 6in. and footings 5 and 7 story, approx. 170x260 ft. Phoenix Hotel addn. Total est. $5,000,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Ill., archts. CD 2/28.

Tex., Dallas—OFFICE—Baptist Foundation of Texas, The Relief & Annuity Bd. SBC, Baptist Bldg., soon lets contract 4 story, bsmnt., office, $600,000. John B. Danna, 2618 Cedar Springs, archt. R. L. Rolfe, 2204 Griffin St., and Stewart & Vinther, Mercantile Sec. Bldg., engrs. CD 11/17/49.

LOW BIDDERS

Nev., Reno—HOSPITAL—St. Mary's Hospital, c/o L. A. Ferris & G. Erskine, archts., 527 La Rue St., 3 story, bsmnt., steel rein.-con. 40 bed hospital addn., from Mervin L. Gardner, 750 E. 5 St., $649,729.

Pa., Pittsburgh—HOSPITAL—Industrial Home for Crippled Children, 1426 Denniston Ave., 2 story, bsmnt., 160x200 ft. brick, steel hospital addn. Denniston Ave. from Brenna Constr. Co., 100 6 St., Approx. $708,200. Wm. York Cocken, Century Bldg., archt.

Pa., Reading—PHYSICAL EDUCATION—Albright College, Reading, rejected bids Aug. 9, physical educ. bldg., L. R. $654,572. CD 9/6, under LB.

Tex., Fort Worth—SCIENCE—Texas Christian University, c/o Dr. M. E. Sadler, pres., Fort Worth, Sept. 15, general contract, science bldg. on University Dr. of the campus, from McCann Constr. Co., 1813 E. Lancaster St. $733,013. CD 8/18.

Tex., Houston—CHURCH—St. Lukes Methodist Church, 3305 Westheimer Rd., Sept. 8, 2 story, bsmnt., 70x370 ft. concrete, brick church, from Fisher Constr. Co., 4721 Greeley St., $510,000. CD 8/28.

CONTRACTS AWARDED

Calif., Baldwin Park—DWELLINGS—Bissner & Gowdy, 3733 E. Colorado Blvd., Pasadena, 90 frame, stucco dwellings, Los Angeles Rodenbach, Belgate and Dembien Sts., and Harlan Ave. Owner builds, $526,700.

Calif., Culver City—DWELLINGS—Southgate Bldg., Co., 470 S. Beverly Dr., Beverly Hills, 108 stucco dwellings, to Grandview Constr. Co., 470 S. Beverly Dr., Beverly Hills, approx. $810,000. Allen G. Siple, 9507 Santa Monica St., Beverly Hills, archt.

Calif., Los Angeles—DWELLINGS—Burco, Inc., 7462 Lankershim Blvd., 106 stucco dwellings, Reliance, Rangoon, and Wentworth Sts., to Pan-West Constr. Co., 7462 Lankershim Blvd., $756,000.

▲ **Calif., Los Angeles**—DWELLINGS—Panorama Community Homes, 5555 W. Manchester Blvd., 71 frame, stucco dwellings, Buffalo Ave., Bardwell and Community Sts. Owner builds, $1,685,140. Wurdemian & Beckett, 5657 Wilshire Blvd., archts.

▲ **Calif., Norwalk**—DWELLINGS—Studebaker Groves, Inc., 3523 S. Labres Ave., Los Angeles, 83 frame, stucco dwellings, Doumont, Halcourt, Leibacher Aves., Little Lake and Studebaker Rds., LeFlossa and Cecilia Sts. Owner builds, $1,386,180. Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, archt.

▲ **Calif., Oroville**—RESIDENCES—Trainor-McKay Co., 1017 Jay St., Sacramento, 126 residences to form Grand View Subdivision to Geo. W. Reed Co., 1217 56 St., Sacramento, approx. $1,000,000.

Calif., San Francisco—RESIDENCES—M. J. King Co., 231 Franklin St., 116 five-room residences in Del Paso Manor Unit 12 and 6. Owner builds. $730,800.

▲ **Ill., Waukegan**—DIAL TELEPHONE EXCHANGE—Illinois Bell Telephone Co., Utica St. near Washington St., 2 story, 130x135 ft., steel, concrete, brick, stone dial telephone exchange, to Dahl-Stedman Co., 7 S. Dearborn St., Chicago, Zone 3, $4,500,000. Awarded 9/8. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.

▲ **Mass., Boston**—HOSPITAL—N. E. Deaconess Hospital, 16 Deaconess Rd., hospital, 185 Pilgrim Rd., to Turner Constr. Co., 38 Newbury St., $3,300,000. Bids 8/29. CD 8/25.

Mich., Detroit—AID CENTER—International Institute, Inc., 2432 E. Grand Blvd., 2 story, concrete, glass Aid Center, John R and Kirby Sts., to Barton-Malow Co., 2631 Woodward St., approx. $500,000. O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., archts.

Nev., Reno—APARTMENT—A. H. Heller Co., c/o David Vhay, archt., 131 W. 2 St., 72 unit apartment with 6 wings. Owner builds. Approx. $600,000.

N. J., Ewing Twp (Trenton P. O.)—RESIDENTIAL DEVELOPMENT—John Totter, Bear Tavern Rd., Trenton, residential development, Sullivan Way and Parkway, separate contracts. $500,000.

N. Y., East Meadow—HOUSES—Frank Builders, Inc., c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, fifty 1 family houses, Coolidge Dr. and Hempstead Turnpike. Owner builds. Approx. $500,000.

N. Y., Forest Hills—APARTMENT—Midtown Apartments, c/o Oscar I. Silverstone, archt., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment 71 Rd. and 110 St. Owner builds. Approx. $500,000. CD 8/10.

▲ **N. Y., Forest Hills**—APARTMENT—1948 Construction Co., Inc., c/o S. V. Becker, archt., 12 E. 38 St., New York, Zone 16, 6 story apartment, Yellowstone Blvd. from 67 Dr. to 67 Rd. Owner builds (under way). $1,120,000. CD 3/31.

▲ **N. Y., New York**—OFFICE—Simon Bros., 292 Madison Ave., Zone 17, 23 story office, Madison Ave. and 41 St. Owner builds. Approx. $9,000,000. CD 10/28/49.

N. Y., Ozone Park—HOUSES—Mayfair Homes, c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, 50 one family houses, 150 Ave. and 116 St. Owner builds. Approx. $750,000.

▲ **Pa., Scranton**—COLLEGE—Marywood College, 2300 Adams Ave., 4 college bldgs., to McCloskey & Co., 1620 W. Thompson St. $1,000,000. Bids 9/12. CD 9/6.

Tex., San Antonio—STORE UNITS, etc.—San Antonio Produce Terminal Market, c/o Joe J. Barshop, 310 Produce Row, 80 store units in continuous line of 2 story each and administration unit, to H. B. Zachry Co., Box 2570, $510,500 and $259,000 respectively. CD 8/25, under Industrial Buildings.

▲ **Va., Danville**—HOSPITAL—Memorial Hospital, c/o contractor, hospital addn., to English Constr. Co., Altavista, $2,450,000. Bids 8/24. CD 9/5.

▲ **Va., Richmond**—APARTMENTS—Duke Constr. Corp., c/o E. Tucker Carlton, archt., 1009 E. Main St., 468 apartment units to be known as Suburban Apartments. Owner builds. Approx. $3,000,000.

Wis., Appleton—SCHOOL—St. Joseph's Catholic Congregation, Appleton, general contract 2 and 5 story bsmnt., 120x288 ft. T-shaped school to Hoffmann Constr. Co., 1519 N. Oneida St., $619,000. Bids 8/22. CD 9/6, under LB.

Wis., Milwaukee—HOSPITAL—Misericordia Hospital, 2224 W. Juneau Ave., Zone 3, 6 story, brick, steel

hospital addn., to E. Steigerwald & Sons, Inc., 5310 W. State St., Zone 8, $850,000. CD 5/24.

INDUSTRIAL BUILDINGS

BIDS ASKED

Pa., Phila.—FACTORY, etc.—B.A. 10/2—The Ballinger Co., archt., 121 N. Broad St., factory and office addns. alterations for Electric Storage Battery Co., 19 St. and Allegheny Ave. $400,000. CD 5/26.

Pa., Warrendale—SERVICE STATION—B.A. 10/2—Gulf Oil Corp., Gulf Bldg., Pittsburgh, 1 story bsmnt., 49x123 ft. irregular shape, stone service station and restaurant, Pennsylvania Turnpike. $250,000.

Ont., Sudbury—WAREHOUSE—B.A. 10/2—Riddle & Connor, archts., 422 Wellington St., London, 1 story, 104x160 ft., wood framework brick facing food warehouse, for Dominion Stores, Ltd., 832 Old Weston Rd., Toronto, Approx. $100,000.

Ill., Skokie—SHOP, etc.—B.A. 10/4—Chicago Transit Auth., Oakton and Central Park Ave., 1 story, 100,000 sq. ft., steel, brick shop and repair bldg., $600,000.

Pa., Phila.—STORAGE, etc.—B.A. 10/5—The Ballinger Co., archt., 121 N. Broad St., storage and warehouse, for The Salvation Army, 725 N. Broad St., Approx. $68,000.

SOON LETS CONTRACT

▲ Pa., Altoona—PLANT—National Radiator Co., Johnstown, soon lets contract 1 story, 300x475 ft. brick, concrete block, steel mfg. plant, Duncansville, near here. $1,000,000. Buckart Eng. Co., York, Engr. CD 8/9.

Pa., Duncansville—FACTORY, etc.—Clair S. Buchart, archt., 611 W. Market St., York, soon lets contract, factory, office, loading platform for National Radiator Co., c/o archt. $500,000.

Pa., Villanova—BOILER HOUSE, etc.—Villanova College, Villanova, soon lets contract boiler house and radial brick stack. $600,000. George M. D. Lewis, Kressler Court, Scranton, archt. Scandale-Burkavage & Assoc., Lincoln Bldg., Scranton, engrs.

CONTRACTS AWARDED

▲ Ala., Mobile—GRAIN ELEVATOR—Alabama Elevator Co., c/o L. V. Jimmie Butler, 60 S. Front St., Memphis, Tenn., grain elevator, to James Stewart Corp., 231 S. La Salle St., Chicago, Ill., $2,000,000. CD 8/31.

▲ D. C., Wash.—DISTRIBUTION CENTER, etc.—Preston Constr. Co. Div. of Safeway Stores, Inc., Barr Bldg., 1 story, 700,000 sq. ft., masonry distribution center and warehouse, to Turner Constr. Co., 1500 Walnut St., Phila., Pa., $4,000,000. Alexander D. Crosett Assocs., 27 William St., New York, N. Y. archts.

Ill., Chicago—FACTORY—Sunbeam Corp., 5408 W. Roosevelt St., Zone 44, 1 story, 126,000 sq. ft. steel, concrete, brick factory addn., to Campbell-Lowrie & Lautermilch Corp., 400 W. Madison St., Zone 6, $700,000. Awarded 9/13. Olsen & Urbain, 5 S. Wabash St., Zone 3, archts. Neiler Rich & Blanden, 431 S. Dearborn St., Zone 4, engrs.

Ky., Louisville—SHOP—Louisville & Nashville R. R. Co., C. H. Blackman, ch. engr., 9 St. and Broadway, 1 story, 83x516 ft., structural steel, solid brick diesel shop, own forces, $500,000. CD 4/14.

W. Va., Clarksburg—PLANT—Pittsburgh Plate Glass Co., Grand Bldg., Pittsburgh, Pa., 1 story, 110x165 ft., steel mfg. plant, separate contracts, $500,000.

UNCLASSIFIED

BIDS ASKED

New York—RADIO TOWER—B.A. 10/5—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, construct radio tower, FM radio and electrical work at Fire Repair Shop, Hunters Point Ave. between 34 and 35 Sts., Queens Boro. Plans deposit $10. Extended date, CD 9/14.

N. J., Weehawken—SHEDS, etc.—B.A. 10/6—New York Central R.R. Co., G. A. Noren, ch. engr., 466 Lexington Ave, New York, 17, N. Y., sheds, piers, etc. in yards near Lincoln Tunnel.

† Wyoming—TRANSMISSION LINE—B.A. 10/10—Bureau Reclamation, Dpt. Interior, Casper, Wyo., constr. of Seminoe-Sinclair 115-kilovolt transmission line, Transmission Div., Missouri River Basin Proj., near Sinclair. Spec. 3171. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

LOW BIDDERS

N. Y., Great Kills—BATHHOUSE—Cmr. Parks, at office Dpt. of Parks, The Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, Zone 21, Sept. 15, general contract, electrical work for constr. bathhouse on existing fdn., Great Kills Park, Richmond Boro, from Planet Constr. Co., 11 W. 42 St., New York, Zone 18, $676,700. CD 9/1.

CONTRACTS AWARDED

▲ Michigan—FERRY DOCK—State Hy. Dpt., Charles M. Ziegler, comr., Lansing, ferry dock at St. Ignace, M 81 of 49-8-11, Cd. Mackinaw Co., to Luedtke Eng. Co., Frankfort, $1,334,884. Bids 8/4. CD 8/6.

▲ Pa., Phila.—SUBWAY—Dpt. City Transit, City Hall Annex, Market St. Subway (Highspeed) line extension, between 42 and 46 Sts., to Buckley & Co., Inc., 1317 S. Juniper St. $1,773,117. CD 9/6, under L8.

(Proposal Advertisements see pp. 89 to 92)

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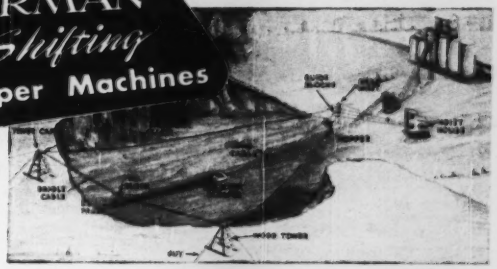

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U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3131) will be received by Bureau of Reclamation, Elverta, California, October 13, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Tracy-Contra Costa 69-kilovolt transmission line, Central Valley Project, California. The work is situated near Tracy, California. The transmission line will be a 3-phase, single-circuit, wood-pole line, approximately 20 miles long, extending from the Tracy switchyard to a junction with the Contra Costa-Clayton-Ygnacio transmission line. Most of the materials will be furnished by the Government. Time allowed for completion will be 120 days. For particulars, address Bureau of Reclamation, Elverta, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(104)

OFFICIAL PROPOSALS

Bids: October 10, 1950 (388)

Construction of Two Bridges

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

PALISADES INTERSTATE PARKWAY, SEC. 1A-BRIDGES

Construction of two bridges on Palisades Interstate Parkway, Section 1A, in the Borough of Tenafly, Bergen County. The principal items of construction are: Estimated:

7,700 sq. ft. Rough Stone Masonry
2,100 cu. yds. Concrete in Structures
91,000 lbs. Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Room 140 in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 10, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: October 16, 1950 (394)

Improvements to Sewage Treatment Works

BOROUGH OF WEST CHESTER,
CHESTER COUNTY, PENNA.

Notice is hereby given that sealed bids or proposals will be received and opened by the President and Council at the Municipal Building, West Chester, Chester County, Pennsylvania, until 7:00 P.M. (E.S.T.), October 16, 1950, for the construction of alterations and additions to the existing Taylor Run Plant and the existing Goose Creek Plant, comprising the improvements to the Sewage Treatment Works of the Borough of West Chester, at which time they will be publicly opened and read aloud. The work will be divided into four contracts designated as follows:

Contract No.	Work
1	Structural
2	Mechanical and Plumbing
3	Electrical
4	Heating and Ventilating

The work under Contracts 1 and 2 in combination may be awarded to one Contractor. Copies of the plans, specifications and other contract documents are on file and open to public inspection at the office of Albright & Friel, Inc., Consulting Engineers, 121 S. Broad Street, Philadelphia 7, Pa., and at the office of the Secretary of Council, and sets of documents may be obtained during any business hour at either of the offices upon paying a deposit of $40.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set will be refunded to each actual bidder; and other deposits will be refunded with a deduction of $20.00 to defray the actual cost of reproduction of the sets of documents. If the said documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A bid bond or certified check made payable to the Borough of West Chester in the amount of (5) per cent of the bid must be deposited by each bidder with his bid as a guarantee that in case any contract is awarded to him, that he will execute the contract and furnish the bond required.

The Council reserves the right to reject any or all bids or waive any informality and to award each contract to cover the construction of either the Taylor Run or Goose Creek Sewage Treatment Plants, or both, as may be deemed by the Council to be to the best interest of the Borough of West Chester.

The proposal must be sealed and marked "SEALED PROPOSAL FOR CONSTRUCTION OF SEWAGE TREATMENT WORKS" addressed to "MR. JOHN S. GROFF, SECRETARY OF COUNCIL, BOROUGH OF WEST CHESTER, PENNSYLVANIA", and the contract or contracts, as well as the site or sites, under which each proposal is being submitted must also be shown thereon.

No bid may be withdrawn within thirty (30) days after the actual date of the opening thereof.

JOHN S. GROFF
Secretary of Council
Borough of West Chester
Chester County, Pennsylvania

(Continued on page 89)

OFFICIAL PROPOSALS

(Continued from page 88)

Bids: October 4, 1950 (096)

Furnishing and Delivering Fire Hydrants

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 848-W

Sealed proposals for furnishing and delivering sixty (60) 4', sixty-five (65) 4.5', seventy-five (75) 5.0', fifty (50) 5.5', twenty-five (25) 6', ten (10) 6.5', ten (10) 7', three (3) 7.5', two (2) 8' fire hydrants will be received at the office of the Purchasing Agent, Room 3 of Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland until 10:30 A.M., Eastern Standard Time, Wednesday, October 4, 1950 at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland.

Dwight B. Galt, Chairman
Warren Browning
Leland G. Worthington
Commissioners

Bids: October 23, 1950 (095)

Filtration Plant & Pumping Stations

GREENSBURG, PENNSYLVANIA

September 19, 1950

Sealed proposals will be received by the Municipal Authority of Westmoreland County until 7:30 P.M., Eastern Standard Time, on October 23, 1950, at the offices of the Authority, 230 South Pennsylvania Avenue, Greensburg, Pa., for the construction of a ten (10) million gallons daily filtration plant and high and low service pumping stations, with plumbing, heating and electrical work, located along State Highway Route 380 where it crosses Beaver Run adjacent to the new dam now under construction in Westmoreland County. All sealed proposals will be opened and read at the time and place designated for said reception of bids.

Copies of bidding forms with specifications and other contract documents may be obtained by prospective bidders upon application to Laboon and Bankson, Consulting Engineers, 1116 Berger Building, Pittsburgh 19, Pennsylvania, or at the office of the Municipal Authority of Westmoreland County, 230 South Pennsylvania Avenue, Greensburg, Pennsylvania, at a cost of fifty ($50.00) Dollars per set, which will be refunded on receipt of a bona fide bid and return of plans and specifications in good order. However, only Twenty-five ($25.00) Dollars will be refunded to those who do not bid after date of receipt of bids.

The right is reserved to reject any or all bids.

MUNICIPAL AUTHORITY OF
WESTMORELAND COUNTY
By: George R. Sweeney, Chairman
LABOON & BANKSON
Consulting Engineers
1116 Berger Building
Pittsburgh 19, Pa.

Bids: October 17, 1950 (102)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NO. 59

The work to be performed under this Contract involves preparation of subgrade; roadway drainage; Turnpike, shoulder, and cross road pavement; side walks, curbs and guard rails; top soil and seeding; and incidental work in connection with the completion of the construction of the New Jersey Turnpike, Section 1, between Deepwater and Woodbury, in Salem and Gloucester Counties, New Jersey.

Principal items of work for this Contract include:

Borrow Excavation—Subsoil	40,000 Cu. Yds.
Excavation	90,000 Cu. Yds.
Borrow Excavation	27,000 Cu. Yds.
Pavement, Various Types	721,000 Sq. Yds.
Shoulders	426,000 Sq. Yds.
Bridge Approach Slabs	4,000 Sq. Yds.
Inlets	875
Reinforced Concrete Pipe, Various Sizes	32,000 Lin. Ft.
Corrugated Metal Pipe, Various Sizes	2,000 Lin. Ft.
Safety Walk Extension	
6" Concrete Sidewalk	2,000 Sq. Yds.
Concrete Divisor Curb	6,000 Lin. Ft.
Guard Rail	12,500 Lin. Ft.
Topsoil and Seeding	600,000 Sq. Yds.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of October 17, 1950 and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plan and equipment. Contract documents may be seen, and may be inspected by prospective bidders during office hours, after September 25, 1950 at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Engineers, J. E. Greiner Company, 1201 St. Paul Street, Baltimore, Maryland.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned. Plans showing grading cross sections may be examined at the office of the Authority or at the office of the Engineers.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) per cent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the above place on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the contract documents.

The Contract will be awarded or proposals rejected on or before December 1, 1950. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

September 21, 1950

Bids: October 16, 1950 (103)

Permanent Control Tower Foundations

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT

CONTRACT NYA-143

Sealed proposals for the construction of the foundations for the permanent control tower at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., N. Y. 11, until 2:00 P. M. Monday, Oct. 16, 1950, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

Howard S. Cullman, Chairman.
THE PORT OF NEW YORK AUTHORITY
New York, September 28, 1950.

U. S. Government

BIDS FOR REPOWERING TOWBOAT—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 11:00 A.M., C.S.T., October 24, 1950, and then publicly opened, for repowering the twin-screw, diesel engine propelled towboat Colner using Government-furnished engines and accessories. $10.00 deposit required on plans. Information on request. (101)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3188) will be received by Bureau of Reclamation, Denver, Colorado, October 19, 1950, and then publicly opened for furnishing three 12.78-foot by 21.78-foot fixed-wheel gates for Canyon Ferry Dam, Montana, Missouri River Basin Project. Delivery is desired within 270 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (100)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3189) will be received by Bureau of Reclamation, Riverton, Wyoming, October 11, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, canal lining, and structures, Wyoming Canal, Station 2560+00 to Station 3504+00, Badger lateral, Station 0+00 to Station 59+37, laterals W18.59 to W61.56, sublaterals, Cottonwood drain, and two bridges, Riverton Project, Wyoming. The work is situated 25 miles north of Riverton, Wyoming. Principal items are approximately 750,000 cu. yds., excavation for roadway, channel, and structures; 770,000 cu. yds., excavation for canal; 3,420 cu. yds., concrete in structures; 300,000 pounds, furnishing and handling reinforcement bars; and 86,000 sq. yds., portland cement, concrete canal lining or 86,000 sq. yds., asphaltic concrete canal lining; and other work. Time allowed for completion will be 230 to 550 days. For particulars, address Bureau of Reclamation, Riverton, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (099)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3190) will be received by Bureau of Reclamation, Ephrata, Washington, October 19, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and concrete lining, Station 255+85.56 to Station 326+90, Main Canal, Columbia Basin Project. The work is situated approximately 7 miles south of Coulee City, Washington. Principal items are approximately: excavation for canal, 606,000 cu. yds.; excavation from borrow pits, 145,000 cu. yds.; concrete in unreinforced-concrete canal lining, 11,500 cu. yds.; and other work. Time allowed for completion will be 240 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (098)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3181) will be received by Bureau of Reclamation, Ephrata, Washington, October 17, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures, Station 2044+50 to Station 2840+00, West Canal, Columbia Basin Project, Washington. The work is situated 6 to 17 miles south of Quincy, Washington. Principal items are approximately: 2,150,000 cu. yds. excavation; furnishing and placing 190,000 lbs. reinforcement bars; 1,200 cu. yds. concrete; and other work. The work is divided into 2 schedules. Time allowed for completion will be 600 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (097)

(Continued on page 90)

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS
(Continued from page 89)

Bids: November 2, 1950 (975)

Pumping Station

OFFICE OF CITY PURCHASING AGENT
NASHVILLE, TENNESSEE

Sealed bids will be received by the Purchasing Agent of the City of Nashville, Tennessee, at the office of the Purchasing Agent, until 10:00 A.M., Central Standard Time, Thursday, November 2, 1950, for Electrification of the George Reyer Pumping Station, including Removal of Allis-Chalmers Crank and Flywheel Pump; Furnishing and Erecting 40 MGD High and Low Service Motor Driven Centrifugal Pumps, Complete with Piping, Valves and Accessories; the Motorizing of the Three Existing Steam Turbine Driven DeLaval Centrifugal Pumps, together with Appurtenances for same; and the Furnishing and Erection of, Electrical Control Equipment and Accessories, according to plans and specifications which are on file in the office of the Director of the Nashville Waterworks Department, Room 201 City Hall, Nashville, Tennessee, and also the office of The Chester Engineers, 210 East Park Way, Pittsburgh 12, Pennsylvania. Immediately after closing time for the receipt of bids they will be publicly opened and read aloud in the office of the Purchasing Agent, City Hall.

The successful bidder will be required to furnish a satisfactory performance bond.

All bids shall be made upon the blank forms of the contract documents. Copies of all contract documents, including Proposal Form, Contract Plans and Specifications and Instructions to Bidders may be obtained at the office of The Chester Engineers by depositing Twenty-five Dollars ($25.00) for each set of documents so obtained. The entire deposit will be refunded to each actual bidder and Fifteen Dollars ($15.00) will be returned to all others who return plans and specifications in good condition within ten (10) days after opening of bids.

The right is reserved by the City of Nashville, through its Mayor, to reject any and all bids, to waive any informalities in the bids received, and to accept any bid which, in its opinion, may be for the best interest of the City.

A certified check or bank draft, payable to the City of Nashville, or a satisfactory bid bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in an amount equal to Five Per Cent (5%) of the bid, shall be submitted with each bid.

No bid may be withdrawn after the scheduled time for the receipt of bids.

CITY OF NASHVILLE, TENNESSEE
E. B. SMITH
Purchasing Agent

Bids: October 30, 1950 (987)

Sewage Treatment Plant

Notice is hereby given that sealed bids will be received in accordance with the law by the Ewing-Lawrence Sewerage Authority (mailing address, 156 West State Street, Trenton 8, New Jersey) until two o'clock P.M., Eastern Standard Time on the thirtieth day of October at the Lawrence Township Hall on the Trenton-Princeton Road near West Church Road, for furnishing materials and performing the labor for constructing a three million eight hundred thousand (3,800,000) gallons per day rated capacity sewage treatment plant, all in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Authority or from the Consulting Engineers at their New York office upon deposit of Fifty ($50.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty (20) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be performed is divided into four (4) sections, under which the work is classified according to its character. The principal items of work are as follows:

SECTION A—BUILDINGS AND STRUCTURES for a complete sewage treatment plant of three and eight-tenths (3.8 million gallons daily capacity, including a main building and pumping station, a garage and pumping station, two (2) primary clarifiers with sludge removal mechanisms, two (2) trickling filters with rotary distributors, two (2) secondary clarifiers with sludge removal mechanisms, two (2) sludge digestion tanks with floating covers, heating equipment, control building and heater building, four (4) glass-covered sludge drying beds, chlorine contract chamber and outfall sewer, complete with all equipment, piping and appurtenances.

SECTION B—ELECTRICAL EQUIPMENT AND WIRING for the sewage treatment plant, including switchboards, controls, power, light, gauge and metering wiring, conduit and accessories.

SECTION C—HEATING including boilers, radiators, piping, controls and accessories.

SECTION D-PLUMBING including water supply, sanitary and drain fixtures, piping, connections and appurtenances.

Each proposal must be accompanied by a certified check payable to the Ewing-Lawrence Sewerage Authority or bid bond from a reliable surety company authorized to do business in the State of New Jersey and satisfactory to the Authority, in amount equal to ten (10%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

Each proposal must be accompanied by an agreement of a surety company qualified to do business in the State of New Jersey in the amount of such proposal, which agreement shall bind the surety company that if the contract be awarded the bidder it will, upon the contract being awarded, become surety for faithful performance of said work. Said agreement shall be in writing and in the form of surety guarantee provided. The successful bidder will be required to furnish the statutory performance bond in the amount of his bid, approved as to form by the Authority counsel and as to sufficiency by the Authority.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

EWING-LAWRENCE SEWERAGE AUTHORITY
H. Collin Minton, Jr. (Chairman)
Wilson O. Bachman (Vice Chairman
Garret S. Boetsma (Treasurer)
Wilfred F. Predhome (Secretary)
Harry E Case
John G. Brady
Buck, Seifert and Jost
Consulting Engineers

Bids: October 24, 1950 (986)

Wharf & Shed

Sealed proposals will be received by the Waterman Dock Company, Incorporated, and the Puerto Rico Transportation Authority at the Office of the General Manager of the Waterman Dock Company, Incorporated, Terminal Building, San Juan, Puerto Rico, until 11:00 A.M., Puerto Rico time, the 24th day of October, 1950, and then publicly opened, for furnishing necessary materials, labor, equipment, supplies, supervision, etc., and constructing the following described work:

Construction of a reinforced concrete marginal wharf, concrete and steel transit shed, with concrete platform, and paved street areas, for the Waterman Dock Company, Incorporated, of San Juan, Puerto Rico, and the Puerto Rico Transportation Authority.

A certified check or bank draft, payable to the Waterman Dock Company, Incorporated, or a satisfactory bid bond, executed by the bidder and acceptable sureties in an amount equal to 5% (five percent) of the bid shall be submitted with each proposal.

Specifications, proposal forms, bid and performance bond forms, contract forms and plans will be on file in the Office of the General Manager of the Terminal Building of the Waterman Dock Company, Incorporated, P. O. Box 3628, San Juan 17, Puerto Rico; and likewise will be on file with the Ewin Engineering Corporation, Consulting Engineers, P. O. Box 361, Mobile 3, Alabama, on and after September 28, 1950. Complete sets will be furnished to prospective bidders on deposit of Fifty Dollars ($50.00) which will be refunded to depositors who submit formal proposals, and return sets in good condition within Ten (10) days after the opening of bids. However, Forty Dollars ($40.00) only will be refunded to bona fide Bidders for extra sets returned and to those taking sets and not filing formal proposals.

A performance bond in an amount not less than the sum bid will be required at the signing of the Contract, and, in addition, a bond in an amount not less than fifty percent (50%) of the contract price, insuring payment for all labor and materials.

No bid will be considered unless the bidder is properly qualified to submit a proposal for this construction in accordance with the above requirements.

The right is reserved to reject any and all bids and to waive informalities.

WATERMAN DOCK COMPANY, INCORPORATED
P. O. Box 3628, San Juan 17, Puerto Rico
E. M. Thyvaert, General Manager
PUERTO RICO TRANSPORTATION AUTHORITY,
San Juan, Puerto Rico,
Salvadore V. Caro, General Manager.

Bids: October 24, 1950 (978)

Refuse Disposal Plant

TOWN OF OYSTER BAY
NOTICE TO CONTRACTORS

Sealed bids for the construction of All Divisions of a Refuse Disposal Plant Project for the Town of Oyster Bay, in the vicinity of Syosset, Nassau County, New York, will be received by the Town Board at the office of the Town Board, Town Hall, Oyster Bay, New York until 10:30 A.M., o'clock, Eastern Standard Time, October 24th, 1950, and will then be publicly opened and read aloud at a meeting of the Town Board of the Town of Oyster Bay, N. Y.

The Information for Bidders, Form of Bid Form of Contract, Form of Performance Bond, General Conditions, Specifications, and the Contract Drawings, may be examined at the office of the Town Clerk, Town Hall, Oyster Bay, New York, or at the offices of the Consulting Engineer, Henry W. Taylor, 11 Park Place, New York 7, N. Y., and copies thereof can be obtained upon payment of a deposit of Twenty-Five Dollars ($25.00) for each set. A refund of Ten Dollars ($10.00) will be made for each set to each bidder or non-bidder upon return of such set in good condition within ten (10) days after the receipt of bids.

Checks for deposits on Plans and Specifications shall be made payable to the Town of Oyster Bay, N. Y.

The Town of Oyster Bay reserves the right to waive any informalities and to accept any bid or to reject any or all bids.

Each bidder must deposit with his bid cash or a certified check in an amount of not less than five percentum (5%) of the base bid, made payable to the Town of Oyster Bay, N. Y.

No bidder may withdraw his bid after acceptance thereof by the Town of Oyster Bay, or within forty-five (45) days after the actual date of the opening thereof.

TOWN OF OYSTER BAY,
NEW YORK,
BY: LESLIE C. DISBROW
Town Clerk

Dated September 7th, 1950.

Bids: October 10, 1950 (984)

Heating & Ventilating Equipment

CONTRACT 425

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 10, 1950, for Contract 425, for furnishing, delivering, installing and testing heating and ventilating equipment for the sewage treatment plant and pumping stations of the Port Jervis sewerage system, in the City of Port Jervis, Orange County, New York, all as set forth in the specifications.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, depositing the sum of $5.00 in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

(Continued on page 91)

OFFICIAL PROPOSALS
(Continued from page 90)

Bids: October 23, 1950 (983)

Sewage Treatment Project

CITY OF ELMIRA, NEW YORK

Sealed proposals will be received by Max F. Dennis, City Manager on the 23rd day of October, 1950 at 10:00 A.M., Eastern Standard Time, in the City Hall in the City of Elmira, New York, for the construction of a Sewage Treatment Project, consisting of improvements and enlargements to an existing Sewage Treatment Plant, all in accordance with plans, specifications and contract documents prepared by Nussbaumer & Clarke, Consulting Engineers for the City of Elmira. Plans and specifications are on file with the City Engineer at the Bureau of Engineering, City Hall where they may be examined. Copies may be secured from the City Engineer or from the office of the Consulting Engineers, Nussbaumer & Clarke, 327 Franklin Street, Buffalo 2, New York, on payment of $50.00 deposit for each set. Any bidder returning such copy in good condition within 30 days following the receipt of bids, will be refunded a full deposit of $50.00, and any non-bidder upon so returning such copy will be refunded $25.00.

Each proposal must be accompanied by a certified check or bid bond in the amount of 5 per cent of the amount of the bid, payable to the order of Max F. Dennis, City Manager of the City of Elmira. The bond shall be approved by the City Attorney.

Proposals shall be submitted in sealed envelopes, plainly marked on the outside: "Bid for Construction of Elmira Sewage Treatment Project".

No bidder may withdraw his bid within 30 days after the actual date of the opening thereof.

The right is reserved to reject any or all bids.

MAX F. DENNIS,
City Manager

Dated September 28, 1950

Bids: October 26, 1950 (991)

County Stadium

MILWAUKEE COUNTY PARK COMMISSION
ROOM 308, COURT HOUSE
MILWAUKEE, WISCONSIN
OFFICIAL NOTICE

Sealed bids will be received at the office of the Milwaukee County Park Commission, Room 308, Court House, Milwaukee, Wisconsin until 10:00 a.m., Thursday, October 26, 1950, to be opened in the County Board Committee room before the Highway Committee of the County Board of Supervisors and the Milwaukee County Park Commission, for furnishing labor, material, and equipment and constructing the piling and foundations, and the main structure of the County Stadium. The fabrication, delivery, and erection of the main portion of the structural steel required has already been contracted for by the Milwaukee County Park Commission.

Proposal for the work contemplated will be set up as follows:

Unit 1—Piling and foundations
Unit 2—General contract for stadium structure
Unit 3—Combined bid on Item 1 and Item 2

Bidders may submit bids on Item 1 or Item 2 or on Items 1 and 2 combined with the County reserving the right to accept any bid or combination of bids deemed most advantageous to the County.

Approximate quantities of the principal items under Unit 1, Piling and Foundations, are as follows:

90,000 lineal feet of piling
1,800 cu. yds. of concrete
50 tons of reinforcing steel

Approximate quantities of the principal items under Unit 2, General Contract for Stadium Structure, are as follows:

6,400 cu. yds. of concrete
420 tons of reinforcing steel
1,220 squares metal roof deck and roofing
300 squares aluminum siding
20,000 sq. ft. wire mesh
12,000 lin. ft. railing
850 M brick
110 M glazed tile
3,700 lin. ft. stone trim
6,000 sq. ft. corrugated glass
390 plumbing fixtures
4 electric vaults with equipment
500 lamps-field lighting stadium

All work to be done in accordance with plans and specifications, which will be available at the Milwaukee County Regional Planning Department, Room 303 Court House, after September 28, 1950. A deposit of $10.00 shall be required for each set of piling and foundation plans taken from the office, and a deposit of $50.00 shall be required for each set of general structure plans taken from the office. The deposit shall be refunded if all plans and specifications are returned in good condition not later than ten (10) days after the opening of proposals.

The right is reserved to reject any or all bids or to accept any bid or combination of bids deemed most advantageous to Milwaukee County or to waive any informality in the bidding.

Certified check or bidders bond in the amount of 5% of total amount of bid, payable to Milwaukee County, must be submitted with each proposal as a guarantee that if the bid is accepted, the bidder will execute and file a satisfactory contract and bond within ten days after the award of contract.

MILWAUKEE COUNTY PARK COMMISSION
Jerome C. Dretzka,
Executive Secretary

Bids: October 10, 1950 (990)

Storm Drain

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

WHITE HORSE AVE. & SOUTH OLDEN AVE. STORM DRAIN

Construction of White Horse Avenue and South Olden Avenue Storm Drain from South Broad Street to Maple Shade School and from White Horse Avenue to Maddock Avenue, in Hamilton Township, Mercer County. Federal Aid Secondary Projects Nos. S-17(4) and S-129(1). Length 1.183 miles.

Estimated:
8,000 cu. yds. Roadway Excavation—Earth
15,800 sq. yds. 5" Macadam Base Course
15,800 sq. yds. 3" Mod. Pen. Macadam Inter. Course
2,580 tons Bituminous Concrete, FA-BC-2
5,168 lin. ft. Drainage
47 units Inlets and Manholes
6,760 lin. ft. Concrete Curb
3,400 sq. yds. 4" Concrete Sidewalks

Bids for the above will be received at the office of the State Department, Room 140 in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 10, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 Willow Street, Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: October 10, 1950 (989)

Removal of Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

REMOVAL OF EXISTING GRASSY SOUND BRIDGE

For the removal of the existing bridge across Grassy Sound channel in Lower Township and City of Wildwood, Cape May County. The work consists of the removal of the pier, swing span, timber pile trestles and fender system of the bridge which has been replaced by the new crossing on Route 849, together with incidental dredging.

Bids for the above will be received at the office of the State Highway Department, Room 140 in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 10, 1950, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J. and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

U. S. Government

MISSOURI RIVER BASIN PROJECT
Design Section, Casper, Wyoming,
September 11, 1950

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 827-155 will be received at P. O. Box 280, Reclamation Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, October 5, 1950, and then publicly opened for furnishing and delivering Power Circuit Breaker and Disconnecting Switches for Pine Bluffs Substation Additions, Transmission Division, Wyoming, Missouri River Basin Project.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge to prospective bidders for copies of the specifications; to others $0.25 per copy, not returnable. (992)

(Continued on page 92)

OFFICIAL PROPOSALS
(Continued from page 91)

Bids: October 11, 1950 (933)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of (1) the Highway Law and special provisions thereto for projects financed with federal aid funds, (2) the Canal Law (3) the Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on October 11, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 333 Broadway, Albany, N. Y.				
Schenectady	M-98	Movable Dam 4 Scotia Movable Dam 5 Rotterdam		Replace Gates Dam 4, Replace Lower Gates Dam 5	$15,000 Plans $10	$281,736.25
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., 300 E. Water Street, Syracuse, N. Y.				
Cayuga & Onondaga	FA 0750-6 FA ST50-9 FA ST50-10 FA-ST50-11	Ontario (Bypass) (Thwy) (Port Byron-Jordan Marg. Rds.) Incl. 3 Marginal Roads) (Int. Rds.) Bonta's Bridge Road Oakland Road Town Highway at Sta. 1105 Proj. No. F-1071 (9)	6.53 6.53 mi. 0.79	Fdn. Cse. Rob Grav. = Bit. Tr. Grav. FC = 1.92 mi. Asp. Conc. Ty. 1A, Opt. = 0.75 mi. I-Beam 54' 9" Sp. Alpha I-Beam 56' Sp. 4 Sp. Plate Girder, 235' 4" Total 4 Sp. Alpha I-Beam, 230' 4" Total Closed Box 29' Sp. Alpha Royalty = $445.20	$132,000 Plans $50	$2,204,000.00
Oswego	Ch. 944 Laws 1946	Utica St. Bridge & Approaches: City of Oswego	0.18	Asp. Conc. Type 2A 5 Sp. Plate Girder, 3 at 138'; 2 at 93'	$50,000 Plans $15	$657,994.50
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Livingston	RC 50-53	Conesus-Wayland, SH1321	0.41	Asp. Conc. Ty. 1A, Opt. 2 Closed Box Conc. Culvts. 21' 3 7/8" and 23'	$9,000 Plans $15	$159,000.00
Livingston	FAS50-6	Fowlerville Road, C. R. 5 & 22 Proj. S266 (1)	3.18	Asp. Conc. Type 4A 3 Sp. Alpha Cant. I-Beam 300' Alpha Royalty = $250.10	$25,000 Plans $15	$442,000.00
Monroe	S&C 50-7 FAS50-8	North Goodman Street North Goodman Street Ext. Proj. S435 (1)	1.64	Asp. Conc. Ty. 1A, Opt. = 0.78 mi. Bit. Mac. Ty. 1 = 0.86 mi.	$22,000 Plans $10	$423,000.00
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	FC50-2	Lancaster Vill.; Aurora St. Br. Lancaster Vill.; SH915, Br. No. 1	0.23	8" Cem. Conc. Pavt. 40' Wide = 0.06 mi. Asp. Conc. Ty. 1A, Opt. = 0.13 mi. Misc. Work = 0.04 mi. Raising Exist. Brs.	5% of Bid Plans $10	$148,401.75
		DISTRICT No. 6				
		H. F. Bauman, Dist. Engr., 30 West Main Street, Hornell, N. Y.				
Steuben	FARC50-47	Campbell-Bath, S. H. 5224 Proj. F527 (7)	2.02	9" Cem. Conc. Pavt. 24' Wide = 1.85 mi. Asp. Conc. Ty. 1A, Opt. = 0.16 mi. Misc. Work = 0.01 mi.	$26,000 Plans $15	$459,000.00
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Ulster	FACT50-1 FACT50-2P FAST50-4 FAST50-5 FAST50-6 FAST50-7 FAST50-8	Catskill Thruway (Thwy) (Kingston-Saugerties) (Int. Rds.) Catskill Thruway (Saugerties-Greene Co. Line) CT48-1 Co. Rd. No. 90; Lake Katrine Rd.; Ruby Rd. & Co. Rd. No. 41 Co. Rd. No. 33, Co. Rd. No. 34 Proj. FI-1069 (2)	7.77 3.18	8" & 9" Cem. Conc. Pavt. 50' & Var. Width = 7.77 mi. Asp. Conc. Ty. 1A, Opt. = 3.03 mi. Misc. Work = 0.15 mi. 2 Sp. Alpha I-Beam 88.5' Ea. 2 Sp. Alpha I-Beam 72' Ea. 4 Sp. Alpha I-Beam 268' Total 4 Sp. Alpha I-Beam 205' 10" Total 4 Sp. Alpha I-Beam 214' 6" Total Alpha Royalty = $1,551.12	$290,000 Plans $100	$4,880,000.00
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.				
Broome	FARC50-46	Vestal Road, S. H. 420 Vestal-Binghamton, S. H. 1613, 1613A Proj. C 1019 (3)	4.98	Asp. Conc. Ty. 1A, Opt. (Eastbound) = 4.75 mi. 9" Cem. Conc. Pavt. 2 at 24' Wide (Westbound) = 4.66 mi. Misc. Work = 0.23 mi.	$40,000 Plans $15	$732,000.00
Delaware	B. W. S. 1, 1A, 5 & 6	New York City Board of Water Supply Town Connecting Roads Nos. 1, 1A, 5 & 6 Pepacton Reservoir	7.15	Bit. Mac. Ty. 1 (Pen. Meth.)	$67,000 Plans $25	$1,130,000.00
Sullivan	FARC50-52	Bloomingburg-Monticello, Pt. 2, S. H. 5457, 5457A Proj. F493 (3)	1.18	Asp. Conc. Ty. 1A, Opt. = 0.98 mi. Misc. Work = 0.20 mi. 2 Sp. Truss 140' ea. with 2 Sp. Plate Girders, 70' ea.	$46,000 Plans $15	$842,000.00
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Suffolk	FARC50-50	Bridgehampton-Devon, Pt. 1, S. H. 1495 Proj. F559 (5)	1.66	Asp. Conc. Ty. 1A, Opt.	$12,000 Plans $10	$201,000.00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of above-mentioned Laws, as set forth in "Instructions to Bidders". When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated. The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

EMPLOYMENT

REPLIES (Box No.'s): Address to office nearest you
NEW YORK: 330 W. 42nd St. 18
CHICAGO: 520 N. Michigan Ave. 11
SAN FRANCISCO: 68 Post St. 4

CIVIL SERVICE

THE TENNESSEE Valley Authority has openings in Knoxville, Tennessee, for Civil, Structural, Mechanical and Electrical Design Engineers, and for Architectural Draftsmen. Work is in connection with construction of large steam-electric and hydro-electric projects. Entrance salaries based on a 40-hour work week are $3300 and $4650 per annum, depending on training and experience, with provisions for automatic within-grade increases. Retirement, annual and sick leave benefits. Interested candidates should write to Tennessee Valley Authority, Division of Personnel, Knoxville, Tennessee.

POSITIONS VACANT

WANTED, SEVERAL engineering graduates under 35, by large industrial fire prevention organization for field work involving periodic inspections and special consulting service. Electrical and Chemical engineers preferred. Permanent. Openings in United States and Canada. P-7287, Engineering News-Record.

CONSTRUCTION COMPANY, operating nationwide, specializing in structural concrete, such as bridge piers and their foundations and mass concrete such as dams, require A No. 1 thoroughly experienced estimator familiar with present-day costs capable of preparing comprehensive and complete estimates. To be considered, complete information must be furnished. Our organization has been advised of this advertisement. P-6974, Engineering News-Record.

WANTED: HIGH-Class Draftsmen, structural and industrial. Also, experienced structural designers in steel or reinforced concrete. Also, concrete detailers. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

INSPECTORS OR Engineering Aids for Field and laboratory; experienced in field control of asphalt, concrete, and soils. Give age, qualifications and salary desired. Toledo Testing Laboratory, Toledo, Ohio.

ROAD ENGINEER Wanted—Registered, with construction experience, also drafting and specifications. References. Modoc County Board of Supervisors, Post Office Box 177, Alturas, California.

ESTIMATOR. EXPERIENCED with commercial, industrial and public building work. Give history record and salary expected in first letter. Kuhn Construction Company, Kanawha Valley Building, Charleston, West Virginia.

WANTED AT Once, By Architectural Firm in North Carolina, experienced Mechanical Engineer, capable of laying out heating and plumbing drawings and writing specifications for all types of buildings. Good future for right man. All replies will be kept confidential. Apply to P-7792, Engineering News-Record.

WANTED—EXPERIENCED Estimator. Excellent opportunity for capable and aggressive person. J. H. Findorff & Son Inc., 901 West Wilson Street, Madison, Wisconsin.

POSITIONS WANTED

CONSTRUCTION MGR.-Gen'l Supt. Exp. includes all details of entire heavy and highbldg. and allied constr. 30 yrs. exp. Salary $175.00 week. PW-7763, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, heavy grading projects, earthfill dams, highways, airports, flood control, incidental concrete. Thorough knowledge of equipment and maintenance. Can estimate for bidding purposes aforementioned work. Handle any size project from beginning to end. References and projects built over past 15 years furnished. PW-7586, Engineering News-Record.

(Continued on page 94)

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** EQUIPMENT: USED OR RESALE

UNDISPLAYED RATE
(Not available for equipment advertising)

$1.20 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

DISPLAYED RATE

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

Mechanical design engineers

Experienced in design and development of heavy mechanical equipment, mining machines and tractors. Work includes design, layout and detailing of heavy machinery. Send complete record with photograph. Location, medium-sized city in Western United States.

P-7787, Engineering News Record
330 W. 42nd St., New York 18, N. Y.

SALES ENGINEER

ENGINEERING and CONSTRUCTION

Large industrial engineering and building firm has opening in Eastern Office for qualified Sales Engineer with contacts and recent experience in selling engineering and construction services.

Submit complete information stating experience, education, personal contacts, references, date available and salary requirement. All replies will be treated confidential.

P-7642, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED

SEWER DESIGNER

Responsible position for engineer with experience in design of large scale sanitary and storm sewers. Salary $6640-7740. Full Civil Service status.

FILE APPLICATION BEFORE OCTOBER 23, 1950

For information, apply

CIVIL SERVICE COMMISSION
Room 875, City Hall
City of Philadelphia, Pennsylvania

ESTIMATOR

Construction Engineer 35 or over experienced quantity surveyor and building expediter, wanted by progressive contracting firm doing Schools, Hospitals, Public Buildings, Industrial and Commercial Buildings.

Give full information, experience record and salary expected.

GEO. SHEAF & CO.
449 Neilston St. Columbus, Ohio

SURVEYOR-PARTY CHIEF

Needed at once for work in Eastern Massachusetts. Experienced in Highway Work. State Education and Experience.

P-7784 Engineering News Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR or COST ENGINEER

wanted for work in Brazil Age 28 to 40. By North American Company which has been building hydro-electric projects in Brazil for past 50 years. First class engineering and construction organization with good opportunities for future. Salary to suit qualifications. In reply state experience and personal status in detail. Reply to

Dept. WHK
Canadian Brazilian Services, Ltd.
Yonge & Gerrard Sts.
Toronto, Ontario, Canada

Construction Engineer Superintendent

For General Contracting firm specializing in highways and reinforced concrete bridges. Must be able to prepare estimates, construction surveys and layouts. Reply giving experience, education, date of availability, salary desired to:

P. O. Box 545 Montvale, N. J.

ENGINEERS

Send brief qualification record for free listing of all current openings in your field. Rapid, confidential, nationwide service.

BOULEVARD ENGINEERING PERSONNEL SERVICE
116 South Michigan, Dept. D-1, Chicago 3, Ill.

ENGINEERS *Wanted*

Civil—Electrical—Mechanical—Structural

Apply KAISER ENGINEERS
Division of Kaiser Industries, Inc.
1924 Broadway Oakland, California

Graduate ENGINEERS

GOOD OPPORTUNITIES

for

SENIOR CONSTRUCTION ENGINEERS—ten to fifteen years in heavy Chemical Industrial Construction experience. Must be graduate.

HEATING & VENTILATING DESIGNERS—must be graduate with at least 5 years industrial heating and ventilating design experience or at least 12 years practical industrial design experience in this field.

HEATING & VENTILATING ENGINEERS—must be experienced graduate engineers capable of handling field and office problems in heating, ventilating and air conditioning design including economical evaluation of methods.

PROCESS ARRANGEMENT & PIPING DESIGNERS—must be graduate with at least 5 years experience in industrial design and chemical plant design or at least 12 years practical industrial design experience in this field.

PROCESS ENGINEERS—must be graduate with minimum of 8 years industrial plant design experience at least 3 years of which have been in responsible charge of design work. Field experience desirable. Must have experience in design calculations, equipment design and plant arrangement in the chemical field.

Give experience, education, age, references, personal history, salary received and salary expected. Please be complete and specific.

All inquiries will be considered promptly and kept confidential.

E. I. du Pont de Nemours & Co.
(Inc.)
Engineering Department Personnel
WILMINGTON 98, DELAWARE

Additional Employment Advertising on page 94

A COURSE OF INSTRUCTION BY MAIL IN
STRUCTURAL ENGINEERING
Fortieth Year
OUR COURSES HAVE HELPED THOUSANDS
to better positions and to pass State Board Examinations

- Complete Structural Engineering Course.
- Public Works Structures.
- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION
College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

SALARIED POSITIONS $3,500—$35,000
If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.
R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

POSITIONS WANTED
(Continued from page 92)

CIVIL ENGINEER: Contractor-Engineer Representative or Resident Engineer. Broad field and office experience, general construction, highways, airports, municipal and major defense projects. Reports. Eighteen years on responsible assignments in Latin America, West Indies and Pacific Islands. Fluent Spanish. Willing to travel. Prefer South of foreign but any location considered. Reliable, active and in excellent health. Age 43. Personal interview suggested. Registered P. E., N. Y. Now in New York City. PW-7802, Engineering News-Record.

METER SUPERINTENDENT: Twenty-three years experience all details modern water meter maintenance. Large shop operations, field testing of large meters etc. Present shop servicing 25000 meters. Best references. PW-7694, Engineering News Record.

GENERAL SUPERINTENDENT and Engineer 27 years experience in complete charge of dirt moving sewers, highways, tunnels, and foundations available immediately. PW-7668, Engineering News Record.

BUILDING CONSTRUCTION Engineer — 30 years experience. Thoroughly understands estimating, pricing, subletting and office work. Desires position of responsibility. PW-7689, Engineering News-Record.

DESIGN ENGINEER, doctors degree, top stress analyst, steel and reinforced concrete, vast experience with bridges, buildings, hydraulic structures, at present chief draftsman in bridge office; seeks position that offers wider field of activity and commensurate endowment. PW-7795, Engineering News-Record.

CIVIL ENGINEER, 27 years structural steel design and fabrication experience. Available for responsible position. PW-7690, Engineering News-Record.

CIVIL ENGINEER, P.E., 20 years experience design and construction—bridge and building foundations, industrial buildings and plant structures, piers and bulkheads, bridges, heavy construction—desires responsible supervisory position with consulting engineer or contractor. PW-7814, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT
THOROUGHLY EXPERIENCED
Hospitals, housing industrial bldgs. sewers, roads and bridges. Reg. Engr. Member ASCE. Prefer Ohio or Midwest location.
PW-7716, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES EXECUTIVE
MECHANICAL ENGINEER
Ten years concentrating Northeastern States and Federal Government. Machinery specialty line. Desires connection or franchise with reputable manufacturer with perhaps opportunity to acquire interest. Please state full details in first letter.
RA-7797, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

MANAGEMENT ENGINEER: Analysis of financial and manufacturing company reports, supervision over special situation, highly technical operations, plant improvements and extensions, development exports-imports. PW-7649, Engineering News-Record.

OFFICE MANAGER, Accountant Auditor, now employed, desires foreign contract—16 years diversified experience in heavy, refinery and housing construction. All phases of general and cost accounting, payroll and timekeeping. PW-7693, Engineering News-Record.

GENERAL CONTRACTOR'S Executive to take charge of estimating, bidding, purchasing, sub-contracts, 10 yrs. experience industrial, commercial, public building, desires permanent position with future. PW-7802, Engineering News-Record.

PART TIME WORK WANTED

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Ready Mix Concrete Plant 100 Ton
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15 ton Overhead Crane 85 ft. Span D. C.
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Lorain 55B gas powered crane.
P&H Model 625A 15-ton crawler crane.
Marion 25-ton diesel powered heavy duty truck crane on heavily reinforced Mack.
Brownhoist 1-yd. gas shovel and crane.
Lorain 30 combination ½ yd. shovel, hoe & clam.
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P&H 203 shovel attachment.
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Lorain 40 Hi-Lift shovel attachment.
Bucyrus-Erie 30B tunnel front attachment.
Koehring 301 dragline fairlead.
50' crane-clam boom, 1¼ or 1½-yd.
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Hercules 9-11 ton, three-wheel.

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Minn-Moline UTI wheel type, gas powered with Lull front end shovel loader.

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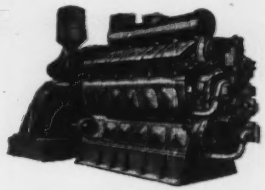

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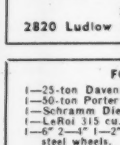

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3 Athey FB; two EB 2 way dump wagons.

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REX 160-180-190-200 with fittings.

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Marion Mod 362 1½ Yd. Shovel, Crane, Dragline.
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P&H 655-B Diesel Shovel. New 1947.
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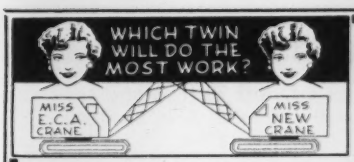

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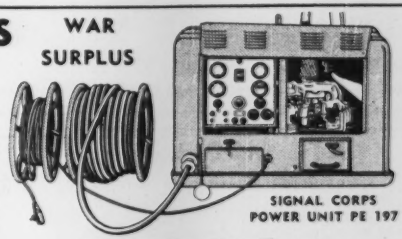

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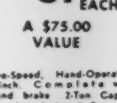

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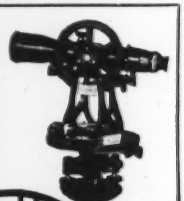

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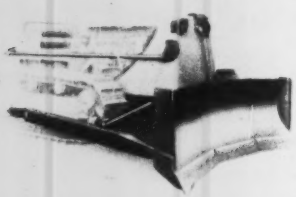
You can depend on these consultants for a fast, accurate solution to your problems. Consult them when necessary.

NEW PRODUCTS

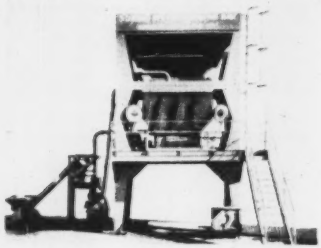
Precast Concrete Headwall Features Lightweight, Easy Installation

Rapid installation and light weight are features claimed for the Protex headwall. The headwalls are fabricated using Class A Protex air-entraining cement. This is said to result in a weight savings of almost half. The headwalls are designed to fit snugly regardless of angle or skew of the corrugated metal or concrete pipe. Pipe is first set to the headwall. It is then set at the proper angle, after which it is cut to fit perfectly. Special lug bolts hold the pipe in place during grouting; accomplished with a special grouting board. Concrete is reinforced with a ring of steel and rods and wire mesh. Headwalls can be furnished with or without foundation base, with one or two wing walls, or without wing walls. They are available from franchised dealers of the patentee.—PROTEX INDUSTRIES, P. O. Box 4044, SOUTH DENVER STATION, DENVER, COLO.



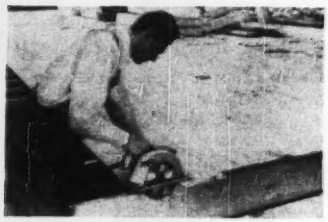
U-Shaped Bulldozer

Large-capacity U-shaped bulldozer fits the Caterpillar D8 tractor. Its design is said to permit long-haul pushing of loose material with minimum end spillage when bulldozing straight ahead. The manufacturer also recommends the 8U for smooth finishing, quick backfilling, pioneering and side-hill work, and felling trees. The complete cable-controlled unit consists of blade, push arms, trunnions, cable, sheaves, and sheave brackets. Cutting width is 11 ft 11 in.; height is 45¼ in.; maximum lift at center point is 47½ in., at end points, is 54¼ in.; limit of blade pitch adjustment is 10 deg; maximum blade tilting adjustment is 16 in.—CATERPILLAR TRACTOR CO., PEORIA 8, ILL.



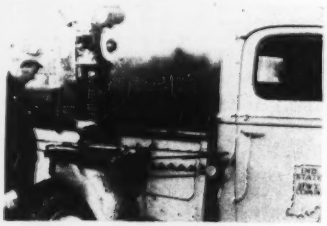
Cold-Mix Asphalt Plant

New unit is first designed specifically for the production of Amalga-Pave—a patented cold-mix pavement. The maker claims that Amalga-Pave can be mixed cold; the aggregates need not be dry for mixing; it can be stored for an unlimited length of time; and it can be laid cold with conventional laying equipment. The plant is available in six sizes, ranging from 1,000 to 6,000 lb per batch. The plant includes a special mixing unit with overhead storage bins, an aggregate weigh hopper, a flux-oil weigh hopper, and a batch-type pugmill. A special unit powders the asphalt just prior to its being added to the mix. Also available is a conversion unit to adapt hot-mix plants to the cold process.—STANDARD STEEL CORP., 5001 BOYLE AVE., LOS ANGELES 58, CALIF.



Portable 8¼-Inch Saw

Features of the 8¼-in. Model 565 Skilsaw include: Depth adjustments from ⅛ to 2⅝ in.; bevel adjustment from 0 to 45 deg; telescoping blade guard; and guide notches for straight or 45-deg cuts. Power is provided by a 115-v ac/dc motor.—SKILSAW, INC., 5033 ELSTON AVE., CHICAGO 30, ILL.



Mower Sickle Grinder

On-the-job sharpening of mower sickles is possible with the Lantz grinder. The grinding stone is mounted on a swinging arm which can be moved back and forth toward the sickle bar—grinding in both directions. A spring-loaded table keeps the sickle bar close to the stone, while the sickle bar itself is moved right or left. The unit handles bars from 1 to 7 ft in length, with extension arms to support bars of greater length.—LANTZ MFG. CO., INC., VALPARAISO, IND.

Wire-Rope Sockets

Reduced dragline rope breakage is said to be achieved by use of the new Baer wire-rope sockets. Features include: Rope is gripped in true-circle seats; wide shoulders limit pinching, prevent rope distortion and cutting; and rope will not flatten or crush. Socket and wedge seats are matched to the size rope for which they are

(Continued on page 105)

Machine illustrated has Diesel power with electric swing. Also available as full Ward-Leonard Electric machine.

MARION gave the industry a new conception of excavating equipment in 1946 when the MARION 111-M was introduced. Here was a 3½-4 cu. yd. machine with all of the benefits of Diesel power PLUS all of the advantages of electric swing. Big enough for high daily yardage, yet easily moved from one job to another. Power enough to stand up to big jobs without flinching. Heavy enough to be steady on its long, wide crawlers.

Now—the MARION 111-M is bigger and stronger—better than ever. It is a thoroughly field-proven machine, piling up performance records that are truly impressive. (Write for copies of letters from 111-M owners.)

Regardless of whether you have seen the MARION 111-M before, you should see it today if a 3½-4 cu. yd. machine has a logical place in your operations. It's a rugged, heavy machine as a shovel or dragline with power and strength to spare.

The 111-M is an important new tool for heavy-duty material handling. Get the full story from your MARION representative or write to the factory for information.

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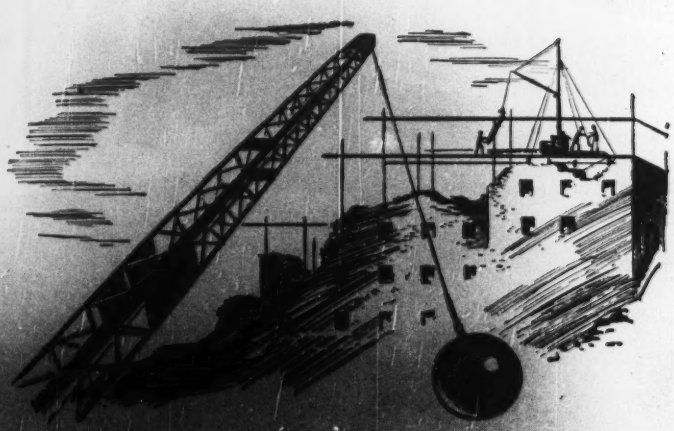

For rope research and developments that help you save...

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YEAR BY YEAR, industry makes new and more stringent demands upon wire rope . . . and Roebling leads in developing types that meet these demands with utmost efficiency and economy.

Take Roebling Preformed "Blue Center" Wire Rope with Independent Wire Rope Core!

No finer rope has ever been made, and its basis is "Blue Center" steel—an exclusive Roebling development. Its high resistance to abrasion, shock and fatigue spells long life . . . To this, Roebling *Preforming* brings the further advantages of new handling ease and improved performance . . . And the addition of I.W.R.C. assures top resistance to operating pressures and provides increased rope strength.

Roebling makes a wire rope of the right construction, grade and size for every type and make of rope-rigged equipment. Have your Roebling Field Man recommend the best rope for low-cost performance on each of your installations.

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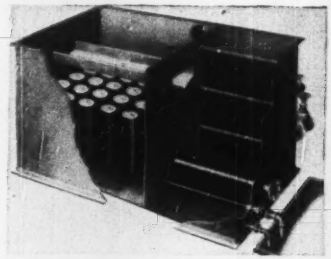
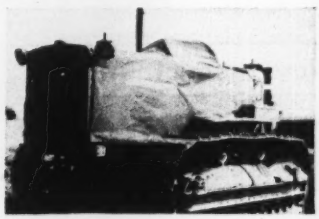
JOHN A. ROEBLING'S SONS COMPANY, TRENTON 2, NEW JERSEY

specified. Each socket holds a loop of six complete strands. Open and closed end and crowfoot drag sockets come in sizes from ¼ to 2¼ in. rope.—BAER STEEL PRODUCTS, INC., AUBURN, WASH.



Vacuum Diatomite Filter

Swimming-pool filter consists of an open steel tank divided into two sections. One is the prefilter stilling chamber equipped with a screen to remove large particles. The other section is the main filter chamber which contains a distributor-collector system, the filter elements, and an air-wash mechanism. Features include: Differential possible across filter elements is limited to 20 ft, said to prevent compaction of the diatomaceous earth; pump in vacuum filter is required to lift water only 35 ft; and all working parts are in plain view and easily accessible for cleaning and maintenance. Installation can be at pool level or elsewhere.—WATERTITE CO., OMAHA, NEBR.



Canvas Tractor Housing

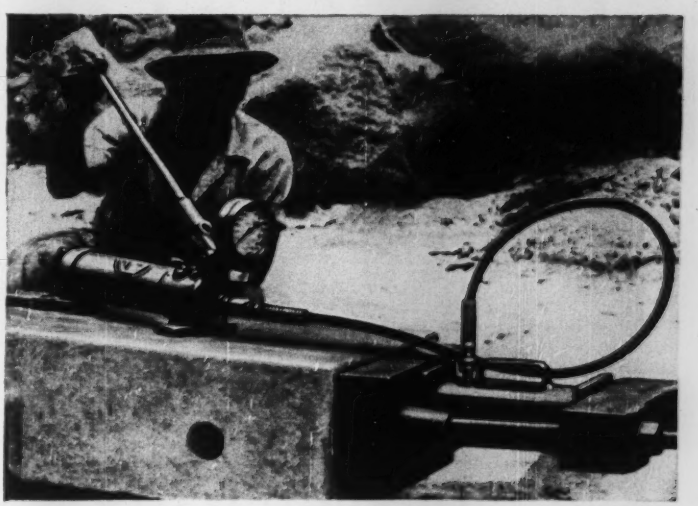
One-piece heavy-duty waterproof canvas housing is designed to provide tractor protection during cold or wet weather. The Heat-Houser Industrial is said to permit operator freedom and to not interfere with operation of most mounted equipment. It is available for most models of crawler tractors.—THE FORT DODGE TENT & AWNING CO., FORT DODGE, IOWA.

Disconnect Hydraulic Coupling

New type hydraulic drive "dumps" the hydraulic fluid when desired to serve as its own master clutch and provide a complete disconnect between prime mover and the load. When a control valve is actuated to cut off the oil supply, the hydraulic

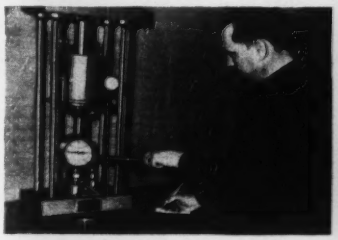
(Continued on next page)

use the MAGIC of
GAUGE-EQUIPPED
Blackhawk Jacks



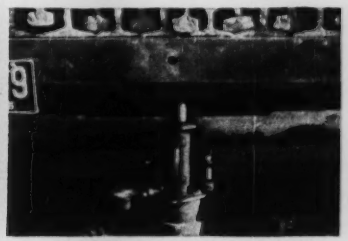
Pre-stressing Concrete with "Measured" Hydraulic Power

Above — a Blackhawk 50-ton "Porto-Power" Hydraulic Jack — *equipped with a gauge* which registers pressure exerted in pre-stressing cellular roadway slabs for a bridge. On many jobs, such low-cost Blackhawk equipment takes the place of large, costly, improvised arrangements.



Laboratory Testing

The heart of this testing device is a Blackhawk Gauge-Equipped Hydraulic Jack. It's being used for a penetration test on road-building material. Gauge registers "lbs. total load" exerted.



Field Testing

Here's a popular set-up for testing the weight-bearing characteristics of soil prior to construction work. This Blackhawk Gauge-Equipped Jack is pushing against a load of ballast.

Blackhawk Gauge-Equipped Jacks (up to 100-ton capacity) do these and many other jobs

- Test fracture points of materials
- Check weights of cumbersome members
- Press plastics etc.
- Test load-bearing qualities of soil
- Press parts together at predetermined pressures
- Draw cables to specified tension
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Gentlemen:
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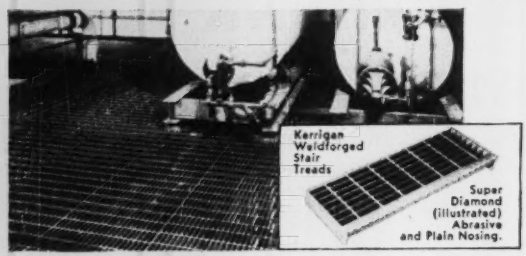


You get an extra margin of safety with Kerrigan Weldforged steel flooring and stair treads. Continuous spiral cross bars, slightly above bearing bars and alternating right and left, leave no slick spots. Cross bars are Weldforged into bearing bars to form a one-piece unit of great strength.

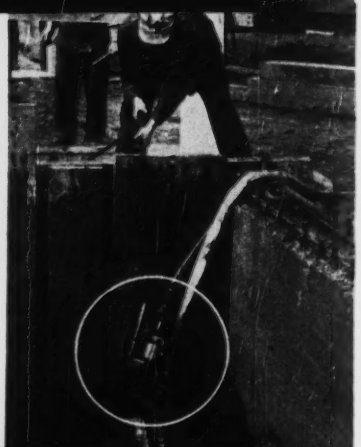
For safety, strength, maximum light and ventilation, easy installation and maintenance, always specify Kerrigan Weldforged grating and stair treads. Its uses are many, indoors and out—open flooring, stair treads, sidewalk doors, catwalks, subway grating . . . to name only a few.

Send today for desk size sample and latest catalog. Write Department 23

Weldforged GRATING DIVISION

KERRIGAN IRON WORKS, INC.
GENERAL SALES OFFICE, 274 MADISON AVE., N.Y.C.
MID-WEST SALES OFFICE, 2725 W. PETERSON AVE., CHICAGO

PUMPING PROBLEMS? HERE'S THE ANSWER!



CLECO

No. 183-A AIR-OPERATED

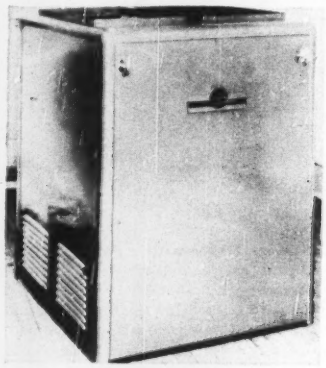
PORTABLE SUMP PUMP

Capacity, 340 gpm at 10 ft. head, 124 gpm at 70 ft. head • Weight only 56 lbs. • Requires no priming • Available in steel or bronze construction • First choice of production-minded contractors

Write for Bulletin SP-849

CLECO DIVISION
of the REED ROLLER BIT COMPANY
P. O. BOX 2119 HOUSTON 1, TEXAS

fluid is released into a reservoir. Thus with the hydro-kinetic connection broken by the absence of oil, the engine can continue to run indefinitely without harm to coupling or driven equipment.—TWIN DISC CLUTCH CO., RACINE, WIS.



Home Air Conditioner

Economical air conditioning unit is said to efficiently cool an average five-room house. Flexible in application, it can be installed in conjunction with any forced warm-air heating system; as an independent central system; or in a series of individually located remote units. The York conditioner has a completely hermetically sealed unit with no bolts or gaskets. The equipment is easily turned on or shut off by a flick of a switch.—YORK CORP., YORK, PA.

New Product Briefs

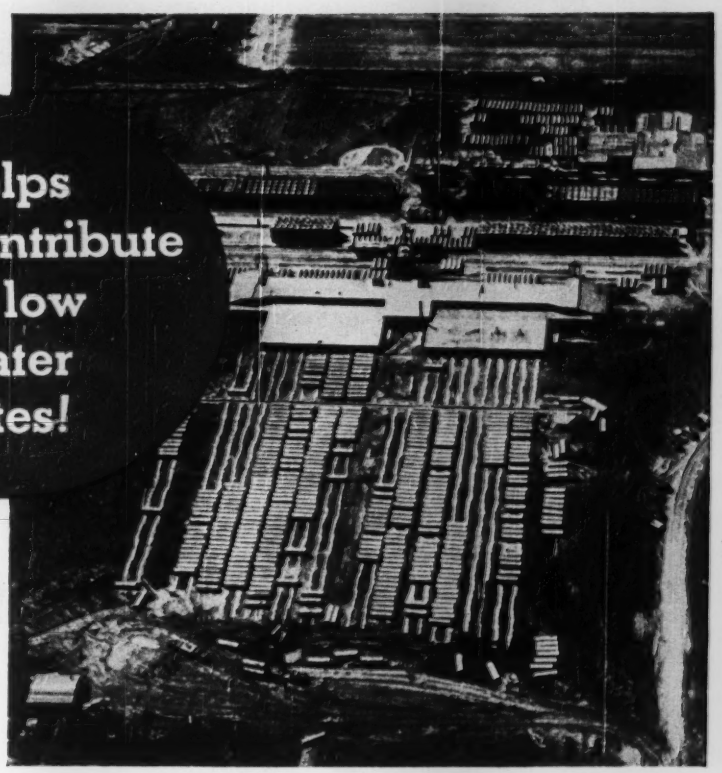
Wax coating protects metal surfaces against rust and corrosion. It is applied by dip, brush, wipe, or spray methods. Manufactured by: S. C. Johnson & Son, Inc., Racine, Wis.

Waterproof paper consists of continuous glass fibers swirled between two plies of kraft paper. Glas-Kraft can be used as a vapor barrier, sidewall sheathing, protective floor covering, over subfill, and for curing concrete. —Manufactured by: Glas-Kraft, Inc., Lonsdale, R. I.

Puller is designed for removing the pre-combustion cup from all International Harvester diesel engines. Manufactured by: Owatonna Tool Co., Owatonna, Minn.

Electric-generating plant delivers 400-watts at 60 cycles, and operates for five hours on 1 gallon of gasoline. Manufactured by: D. W. Onan & Sons, Inc., Minneapolis, Minn.

LOCK JOINT PIPE helps contribute to low water rates!



A temporary Lock Joint pipe plant at the site. Use of local labor and materials returns to the community a large part of the pipeline cost.

Although a modern water supply system represents a sizeable investment, sound engineering makes it possible to keep water rates at a minimum.

Knowing this, economy-minded water supply engineers specify Lock Joint Reinforced Concrete Pressure Pipe for mains of 16" or larger. Lock Joint's low initial cost, its long life, its exceptionally high carrying capacity and its negligible maintenance cost assure the utmost service for the consumer's dollar.

Water works officials who have installed Lock Joint pipe lines point to these lines as the most economical in their entire systems.

We shall be glad to discuss your requirements. Simply write or call our nearest office.

Lock Joint's easy installation means low laying cost.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

The Proof of Quality Is in PERFORMANCE

For over half a century, "HERCULES" (Red-Strand) Wire Rope has been proving its outstanding quality by the accurate yardstick of performance—on all sorts of jobs, and in one industry after another. Such *consistent* performance is not a matter of chance. Design . . . rigid tests and inspections . . . equipment . . . firm standards — are essential factors.

As "HERCULES" is made in a wide range of sizes, types and constructions—Preformed or Non-Preformed—there is in this one grade, a "right rope" for *any* heavy duty purpose.

We Invite Your Inquiries

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Manufacturers' Publications

Water, Sewage Oxidator—Informative brochure (12 pp) explains development of the Process Oxidator for water and sewage treatment. Text, flow sheets, diagrams, and actual photographs describe various types of units now available. Actual installation data cover single and dual-stage Bio-Oxidation, use of the Oxidator in conjunction with a biological filter, and the Oxidator's value in the treatment of water. — PROCESS ENGINEERS, INC., 6381 HOLLYWOOD BLVD., LOS ANGELES 28, CALIF.

Water-Main Sterilization—Information on main sterilization in this 8-p bulletin covers procedure and equipment developed for this type of work. The bulletin discusses preliminary flushing, chlorine dose, contact period, calculations, equipment, and other data. The bulletin also contains information on sterilization methods other than the one described in detail.—%PROPORTIONERS%, INC., P. O. BOX 1442, PROVIDENCE 1, R. I.

Electric Motors—Design, construction, selection, and ordering information for dc motors from ¾ to 1,000 hp are discussed in an illustrated 12-p bulletin. Special attention is given to mechanical features and electrical characteristics.—RELIANCE ELECTRIC & ENGINEERING CO., 1088 IVANHOE ROAD, CLEVELAND 10, OHIO.

Open-Steel Gratings—Technical manual explains and illustrates different types of gratings. These include Klemp diamond riveted open steel gratings, welded electro-forge open-steel flooring and stair treads, open-steel bridge decking, aluminum bridge decking, and aluminum grating. The catalog contains safe load tables, engineering details and layouts, and data and photographs indicating applications. — WILLIAM F. KLEMP CO., 6608 S. MELVINA AVE., CHICAGO 38, ILL.

Steel Derricks—Complete line of steel derricks with capacities to 250 tons is shown in 36-p Catalog 200-D-3. Types described include guy, stiffleg, steel erector, barge, and special derricks. Each is treated separately in sections which include complete specifications, outline drawings, and full-page operating pictures. Following these sections are complete construction details from boom point to sill connections.

(*Continued on next page*)

with MIXERMOBILE M-7

New 2-yard MIXERMOBILE cuts concrete costs at the new state building, Portland, Oregon. (Pouring was done by the Weston Concrete Construction Co.)

The 2-yard MIXERMOBILE is a complete mobile concrete mixing and elevating plant. One mobile unit does all these things:

Handles aggregates — saves through use of dump trucks.
Accurate mixing — foolproof batch timer and electronic water meter.
Elevates on the job — saves cost of hauling and erecting tower.
Portable elevating and agitating storage plant for *Ready Mix*.

All in one mobile unit . . . entire operation handled by one man. Mixes up to 50 yards of concrete per hour. This amazing M-7 MIXERMOBILE is built for rugged use . . . it's low in maintenance, efficient, and flexible. The M-7 moves from job to job (highway speed 40 mph, meets all highway requirements) saving money on every job . . . making lower bids possible. FEATURES INCLUDE: Electronic water meter, measures water from zero to 100 gallons automatically . . . Hydraulic Controls; Power Divider Transmission; Discharge Timer.

M-7 Ready For Travel

WRITE TODAY FOR LITERATURE AND YOUR NEAREST DEALER

We reserve the right to make improvements in design and specifications without notice.

MIXERMOBILE MANUFACTURERS

Box 7527 • Portland 20, Oregon

COAL HOPPERS AT 150 m.w. POWER STATION ARE "GUNITE" LINED BY CEMENT GUN COMPANY

Photo (above, left), shows the "Gunite" lining we placed on the forty coal hoppers of Units number 1 and 2 at Pennsylvania Power & Light Company's new 150 m.w. steam electric station at Sunbury, Pa. Photo (above, right) pictures the hoppers in use. Cement Gun Company is presently installing the "Gunite" lining in the hoppers of Unit number 3. Many instances of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin A 2400. A request on your letterhead will bring your free copy by return mail.

CEMENT GUN COMPANY
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GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
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Stang WELLPOINT SYSTEM
For
KNOW-HOW
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SUPERVISION
EQUIPMENT
to keep jobs
DRY
The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.
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One page is devoted to the correct method of determining boom length for lifting a required load to a predetermined height at a given radius. Covered briefly are lifting beams, swiveling fairleaders, blocks and sheaves, and revolver cranes and hoists. —American Hoist & Derrick Co., 63 Roberts St., St. Paul 1, Minn.

Chemical Mixing Without Tank—Technical Supplement HM describes the Homomix—a rapid-mix unit said to accomplish instantaneous, violent, and uniform blending of a liquid and one or more chemicals or gases with water, sewage, or industrial waste without the use of a mixing tank. This supplement explains all features of the Homomix and its operation. Illustrations and diagrams show typical applications and installations, an exploded view of the unit, a section of the mixing chamber, and complete dimensions.—The American Well Works, Aurora, Ill.

Metal Scaffolding—All-metal scaffolding built of standard steel pipe and patented fittings is described and illustrated in a 6-p bulletin. The bulletin explains how Amidon three-way fittings, two-way fittings, and sleeves are used to assemble pipe into fixed or rolling scaffolds of any height, size, or shape. Typical figures are given on load capacity, storage space, speed of erection, and other features.—Amidon Sales Co., Box 61, Elyria, Ohio.

Welding High Tensile Steels—Booklet is designed as a guide for users of low-alloy low-hydrogen electrodes. It shows the importance and effectiveness of them in welding low-alloy high-tensile steels, mild steel under highly restrained conditions, and sulfur-bearing free-machining steels. The Tensilend series of electrodes are especially recommended for this type of service.—Arcos Corp., 1500 S. 50th St., Philadelphia 43, Pa.

Asbestos-Bonded Pipe—Features and advantages of asbestos-bonded pipe for use under severe service conditions are described in a 6-p folder entitled "Here's the Drainage Structure With a 'One-Two' Punch." The folder describes how this pipe is produced, describes its structural strength and material durability, and illustrates test installations. Also illustrated are installations of industrial sewers and culverts in marshy and salt-water conditions.—Armco Drainage & Metal Products, Inc., Middletown, Ohio.

Sewer-Joint Compound — Bulletin M20-1 describes the G-K sewer joint compound. This material is a bitu-

minous compound said to make quality, permanent joints. The bulletin contains handy tables showing the quantities of G-K required per joint. —THE ATLAS MINERAL PRODUCTS CO., 10 PINE ST., MERTZTOWN, PA.

Automatic Pump Control—System for automatic pump control is described in new bulletin. This 4-pager shows the Pressureflo equipment and gives diagrams of typical installations as well as describing the versatility of the system. One section of the bulletin is devoted to an outline of what this system will provide and its advantages. Another section provides a description of the Pressureflo control unit and its operation and tells how the device was developed. — BUILDERS-PROVIDENCE, INC., PROVIDENCE, R. I.

Swing Check Valves—Prevention of back flow by cushioned swing check valves is described in 4-p Bulletin W-1. Operating by means of inlet pressure against a check disk, these valves prevent return of water whenever inlet pressure decreases below delivery pressure. The valve has a lever that may be adjusted for fast or slow closing. The valves are fabricated from cast iron or cast steel with bronze or stainless steel seat ring and non-corrosive cushion chamber. Included in the bulletin are engineering drawings, a parts list, and a table of dimensions and specifications. — GOLDEN-ANDERSON VALVE SPECIALTY CO., KEENAN BLDG., PITTSBURGH 22, PA.

Rubber-Base Putty—Catalog section tells of uses for Plastikon rubber-base putty. The section cites advantages of the product, gives directions for its use, and lists stock colors and grades. Plastikon can be applied with calking guns, bulb applicators, or putty knives. —THE B. F. GOODRICH CO., AKRON, OHIO.

Consulting Testing Service—Technical services described in a new bulletin include research, process development, product development, evaluations, and testing. The bulletin describes how this company is prepared to handle technology and engineering for all these services.—SAM TOUR & CO., INC., 44 TRINITY PLACE, NEW YORK 6, N. Y.

Light-Duty Crane — Dolly-mounted crane is described in this 4-p folder. The Jones Model KL-15 has a 1-ton rated capacity. The bulletin describes the features of the KL-15, lists complete specifications, lists safe working loads, and shows typical applications. —TRACTOR & EQUIPMENT CO., 10000 S. RIDGELAND AVE., OAK LAWN, ILL.

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Letter from AUGUSTA, MAINE

Like its two New England neighbors—New Hampshire and Vermont—Maine is facing up to the problem of making a small amount of money go a long way—on a long highway network.

The problem that is before Chief Engineer Lucius Barrows, the state highway commission and the engineers and contractors is not one of bold, sweeping streaks of superroad, or limited-access throughways through densely populated areas.

It is, basically, one of modernization—of making an old road carry new traffic, of easing a curve here, lowering the grade there, replacing a narrow bridge with a wider one somewhere else.

• Let's be practical—These are the hard facts of life that the Maine men must face, and adjust their actions accordingly:

Although its area is relatively vast (33,000 sq. mi.) Maine's population is only about 900,000—less than New York City's Borough of Queens. Yet to serve this population (plus the thousands of vacationists who are an important part of Maine's livelihood) the state must maintain a road system approximating 22,000 miles.

And to improve this system, the state spends somewhere in the neighborhood of $26,000,000 a year (of which $18,000,000 comes from license fees, gasoline taxes, etc. There is about $2,000,000 of federal aid, and contributions from towns and counties toward road maintenance and repair make up the rest.)

And that's all the money there is. Up to now the state has kept itself to the narrow path of pay-as-you-go. As of now, the outstanding highway debt is about $6,000,000—and it's being steadily reduced, at the rate of about $1,600,000 each year. By 1959 the commission plans to be clear of debt.

There's been some talk around Augusta—particularly as the state legislature prepares to meet this winter—of a bond issue of as much as $50,000,000 to cover highway expansion. But hard-headed Yankees have held it to talk so far.

• Bits and pieces—So, the answer has been small things—innumerable small bridge jobs over innumerable small streams (there have been a few big ones too—Augusta's $1,500,000 bridge over the Kennebec is one), widenings, grade easements, resurfacing and the like.

It works, too.

You won't find any superhighways (except the Maine Turnpike from Portland to Kittery) and you will find some stretches of rough going. But you also find passable two-lane-or-better blacktop roads nearly everywhere you go.

Where possible, as on route 202 coming into Augusta from the west, there's quite a bit of new right-of-way (the old road is crossed only once). But most places, the old road just gets a facelifting.

• Bridges get the works—Biggest problem at the moment are the hundreds of bridges—narrow, weak, built for wagon teams—mostly set at a skew as their builders followed natural shorelines.

Typical was the old "bridge" over the Sasanoa River (one of the mouths of the Kennebec) between Arrowsic and Woolwich.

Known—not at all affectionately—to Bridge Engineer Max L. Wiley's crew as the "old stress and strain bridge," this half-mile structure was a real highway engineer's nightmare.

The answer is a new high-level steel bridge (due to open in October—ENR Sept. 21 p 29) and a complete relocation of highway.

• Rebuilding towns too—A substantial portion of the town of Orono (seat of the state university) is getting a drastic face-lifting from the highway commission (for free) as a part of a new bridge job there.

In the course of replacing an old, narrow structure over the Stillwater River at Orono (the Ferry Hill Bridge) commission engineers found they had to raise the grade of the town's main street by several feet in order to cut down the approach to the bridge from a more than 9% grade to 7%.

But the decision also made it necessary to jack up (or tear down) 10 houses, two stores and other structures to meet the new grade; raise and replant several trees in a town park; rebuild an entire curb, retaining wall and steps around the town's one banking establishment and do other work.

This $500,000 job involves a 5-span continuous deck bridge, its three center spans being 100 ft each, two side spans 75 ft each to abutments.

• Details do it—By many standards, the jobs seem cheap. They're no cheaper, intrinsically, than any others, but Chief Designer Clarence Partridge thinks attention to details holds costs in line.

The highway department spends a lot of time on its drawings and specifications. And saves time—and money—thereby, because things are clear to all concerned.

• Maintenance is problem—Biggest problem is maintenance—the system is far-flung, the population small. Snow removal operations, for example, chew up nearly $2,000,000 of the highway budget every year.

Another trouble spot, for instance, is vast, sparsely-populated Aroostook County. Its main road (Route 2) crosses some of the worst terrain in the state—bogs and swamplands at fairly high elevations. And the roads must carry truck traffic (potatoes) at times when thaws have made its base unstable. Twelve miles of it (between Macwahoc and Houlton) are now being built up to new grade and resurfaced.

Something else again is concrete. Although Maine was one of the first states to use air-entrained concrete (in test sections on Route 1 near Brunswick), the state has used little in late years—in fact has been covering most of its concrete with blacktop. The trouble has been heavy scaling of the concrete—which engineers ascribe to winter salting operations.

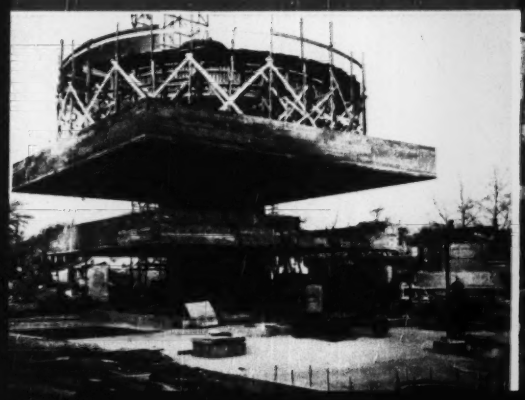
• General construction—Governmental agencies seem, at the moment, to dominate the construction picture in Maine.

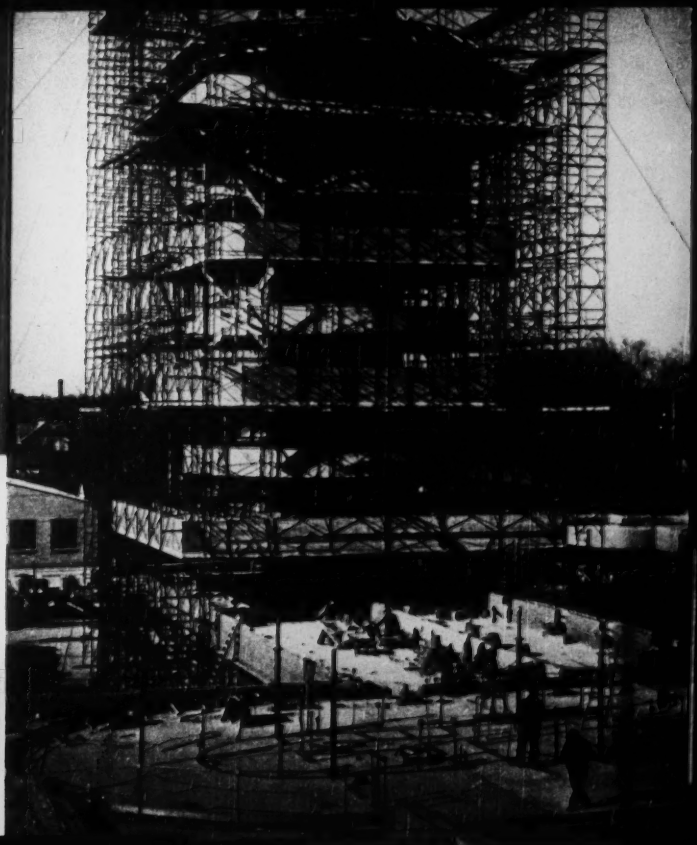
There's some private work, of course—housing, small stores, some factory improvements and such, like hydro development on the Saco River, and a storage basin near Stratton.

But most of the work you see is public work—new schools, sewers, and highways.

One evidence of this may be the fact that the highway commission—short of men a year ago in engineering jobs—had no difficulty this year in filling them, and holding the men.

POZZOLITH CONCRETE IN Ultra-Modern Research Tower





Research and Development Tower, S. C. Johnson & Son, Inc., (makers of Johnson's Wax) Racine, Wisconsin. Archt.—Frank Lloyd Wright, Spring Green, Wisc.; Contr.—Wiltscheck & Nelson, Racine, Wisc.; Pozzolith Ready-Mixed Concrete furnished by Consumers Co., Kenosha, Wisc.

Use of Pozzolith Concrete in many of America's most modern structures, like this research and development tower of S. C. Johnson & Son, Inc., is evidence of its exceptional performance.

Cost-wise, too, the results with Pozzolith are outstanding because whatever the concrete qualities, they can be obtained more economically with Pozzolith than by any other means.

In 1949 alone, over six million cubic yards of Pozzolith Concrete were placed because of such benefits as:

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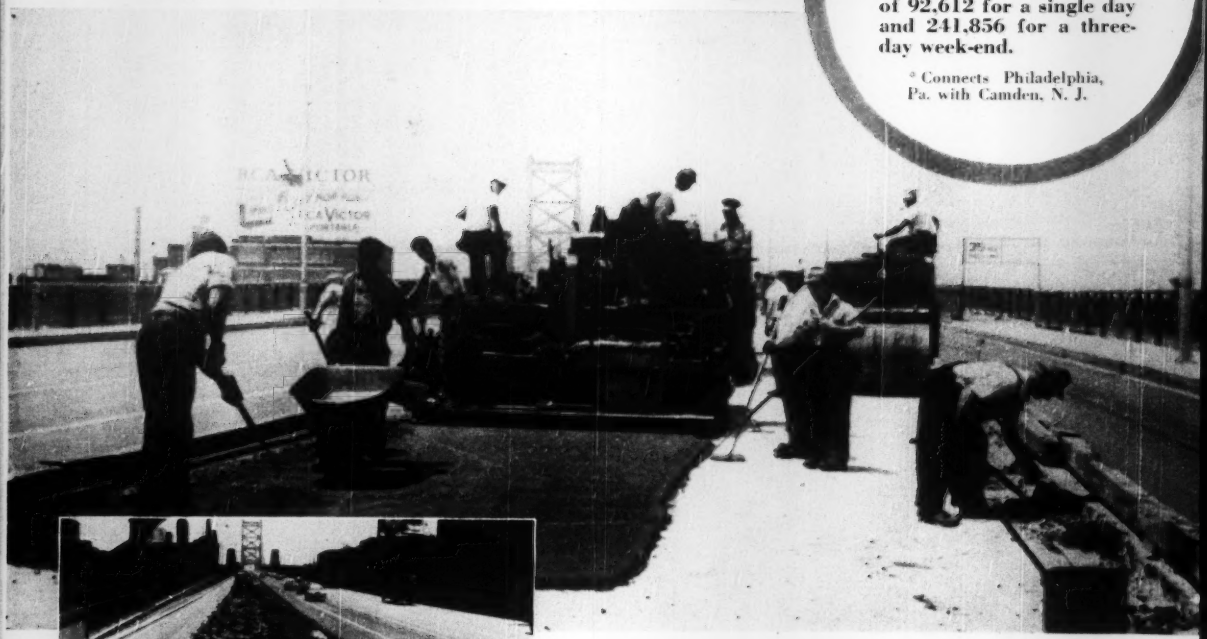
CLEVELAND 3, OHIO TORONTO, ONTARIO

Heavy-duty pavement wanted *here*

26,899,212 vehicles crossed the Delaware River Bridge* last year. One out of nine vehicles was a truck or bus. Traffic over the bridge has reached a high of 92,612 for a single day and 241,856 for a three-day week-end.

* Connects Philadelphia, Pa. with Camden, N. J.

Constructing 8-lane Texaco Asphaltic Concrete pavement on the Delaware River Bridge with minimum interference to traffic.



Old granite blocks were removed to make way for heavy-duty Texaco Asphaltic Concrete, laid by Union Paving Company, Philadelphia.

This 6-lane Texaco Asphalt pavement has been serving heavy Delaware River Bridge traffic for five years with slight maintenance.

As the above figures show, traffic on the Delaware River Bridge at Philadelphia is exceptionally heavy. Not often is a pavement called upon to withstand the severe and sustained traffic, which paving on this bridge gets day after day.

Because of the unusual traffic conditions, road builders will be interested in the use of hot-mix, hot-laid Texaco Asphaltic Concrete to pave an 8-lane section of the bridge this year. Old granite blocks were removed from a large area and replaced by two courses of resilient, heavy-duty Asphaltic Concrete, four to five inches thick.

Five years ago, another section of the Delaware River Bridge was paved with Texaco, employing both Asphaltic Concrete and Sheet Asphalt construction. This section has required virtually no maintenance. It is in excellent condition today and continues to give satisfactory service.

Wherever heavy-duty paving is required, whether for streets, highways, bridges or airports, the proven durability and low annual cost of Texaco Asphaltic Concrete merit careful consideration. For a full description of this and other asphalt types, write our nearest office for the booklet, "Texaco Asphalt Paving—Plant-mixed Types."

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